Undergraduate Catalog 2009/2010

About the Catalog

Online Catalog: The contents of the 2009-10 online Catalog is current as of June 2009.

Program requirements contained in the University of Maryland Undergraduate Catalog supersede any information which may be contained in any bulletin of any school or department. However, the provisions of this publication are not to be regarded as a contract between the student and the Universit University of Maryland. The University reserves the right to change its policies, rules, regulations, requirements for graduation, course offerings, tuition, fees, other charges, or any other contents of this catalog at any time.

Changes are effected from time to time in the general regulations and in the academic requirements. There are established procedures for making changes that protect the institution's integrity and the individual student's interest and welfare. A curriculum or graduation requirement, when altered, is not normally retroactive unless the alterations are to the student's advantage and can be accommodated with the span of years normally required for graduation.

Hyperlinks: This catalog contains hyperlinks to other informational resources at the University of Maryland. The information contained in these links is not a part of the official catalog.

Publications

Undergraduate Catalog: The current Undergraduate Catalog, as well as past versions, are available at this site.

Graduate Catalog: The online graduate catalog is at: www.gradschool.umd.edu/catalog. For information call 301-314-4198.

Registration Guide: The Registration Guide lists registration dates and procedures, deadlines, fees, and general information. It is available prior to early registration for the spring and fall semesters. The Registration Guide is available to all students free of charge and can be picked up at the Mitchell Building, Stamp Student Union, Hornbake Library and McKeldin Library. The Schedule of Classes is available online at: www.testudo.umd.edu/ScheduleOfClasses.html.

About the University

Campus Administration and Deans

College Park Administration

C. D. Mote, Jr., President
Nariman Farvardin, Senior Vice President for Academic Affairs and Provost
Linda Clement, Vice President for Student Affairs
Mel Bernstein, Vice President for Research
Jeffrey C. Huskamp, Vice President and Chief Information Officer
Ann G. Wylie, Vice President for Administrative Affairs
Brodie Remington, Vice President for University Relations

College Park Administrative Deans

Donna B. Hamilton, Associate Provost for Academic Affairs and Dean for Undergraduate Studies
Desider Vikor, Interim Dean of Libraries
Siba Samal, Associate Dean, College of Veterinary Medicine, Maryland Campus
Charles A. Caramello, Associate Provost and Dean of the Graduate School

Academic Calendar 2009-2010

FALL TERM 2009

Classes Start 8/31/09 (Monday)
Labor Day Holiday 9/7/09 (Monday)
Thanksgiving Holiday 11/26/09 (Thursday) through 11/27/09 (Friday)
Last Class 12/11/09 (Friday)
Study Day 12/12-13/09 (Saturday and Sunday)
Final Exams Start 12/14/09 (Monday)
Final Exams End 12/19/09 (Saturday)
Main Winter Commencement Ceremony 12/19/09 (Saturday evening)
College Commencement Ceremonies 12/20/09 (Sunday)

WINTER TERM 2010

Classes Begin 1/4/10 (Monday)
Martin Luther King Holiday 1/18/10 (Monday)
Classes End 1/22/10 (Friday)

SPRING TERM 2010

Classes Start 1/25/10 (Monday)
Spring Break 3/15/10 (Monday) through 3/19/10 (Friday)
Last Class 5/11/10 (Tuesday)
Study Day 5/12/10 (Wednesday)

Final Exams Start 5/13/10 (Thursday)
Final Exams End 5/19/10 (Wednesday)
Senior Day 5/20/10 (Thursday)
Main Spring Commencement Ceremony 5/20/10 (Thursday evening)
College Commencement Ceremonies 5/21/10 (Friday)

SUMMER TERMS 2010

Memorial Day Holiday 5/31/10 (Monday)
Summer I Begins 6/1/10 (Tuesday)
Independence Day Holiday 7/5/10 (Monday)
Summer I Ends 7/9/10 (Friday)
Summer II Begins 7/12/10 (Monday)
Summer II Ends 8/20/10 (Friday)

All dates are potentially subject to change.
Future academic calendars can be viewed at www.provost.umd.edu/calendar/

1. Requirements and Application Procedures

FRESHMAN ADMISSION

The University of Maryland is a publicly funded land grant institution and the flagship of the University System of Maryland. The University's Mission Statement commits it to achieving excellence as the state's primary center for research and graduate education and the institution of choice for undergraduate students of exceptional ability and promise. Consistent with this mission, the University counts the diversity of its students among its greatest strengths and as an integral component of the educational process and academic excellence.

The undergraduate admissions process, which reflects the University's educational mission, seeks to identify those applicants, who as individuals and as a group, will enrich and benefit from the campus learning environment, and thus benefit the entire student body. The process is structured to build entering classes of students whose varied backgrounds and experiences provide substantial evidence of their potential to:

1. Meet the university's requirements for academic success.
2. Enrich the university as a heterogeneous community.
3. Add new perspectives to the university's curriculum and scholarly pursuits.
4. Develop personal skills, including leadership, self-confidence, and intellectual engagement.
5. Contribute to the intellectual, cultural, social and political life of the university, state, and nation.

As the university must make fine distinctions among large numbers of highly qualified applicants, the ability to assess consistently all information presented in the application becomes increasingly important. Therefore, the university employs a rigorous review process that engages the expertise of professional educators in performing individualized and holistic evaluations of each application. Each applicant is assessed on the basis of achievements and potential in a broad range of academic categories, viewed in the context of the opportunities and challenges the applicant faced.
These categories include:

1. Strength of educational performance, as measured by the nature and rigor of high school curriculum and academic achievements.
2. Potential for college success, as evidenced by performance on nationally normed standardized tests.
3. Potential to promote beneficial educational outcomes and to make a positive contribution to campus and community life.
4. Persistence, and commitment to educational excellence, as evidenced by demonstrated success in facing adversity and overcoming obstacles.

Application Forms

Undergraduate application forms may be requested and submitted on-line via the web at www.admissions.umd.edu. You may also download a PDF of the application from the admissions Web site.

Application Fee

A non-refundable $55 application fee is required with each application.

Fall Semester Freshman Admission

The University of Maryland strongly encourages all applicants to apply by our priority application deadline to assure best consideration for admission, merit scholarships, and invitation to the University Honors Program or College Park Scholars. Admission to the University of Maryland is competitive. We receive more than 28,000 applications for a fall freshman class of over 4,000. As a result, we are unable to offer admission to all students who have the ability to be academically successful at Maryland. A completed application includes an application form, official high school transcript, SAT or ACT scores, essay, guidance counselor recommendation form and application fee.

Applying by the priority deadline is encouraged. For updated deadline information, please visit: www.admissio
www.admissions.umd.edu/admissions/apply/application_deadlines.asp. Because of space limitations, the university is unable to offer admission to all qualified applicants.

Spring Semester Freshman Admission

Applications received after the priority deadline date will be considered on a rolling, space-available basis. A completed application includes an application form, official high school transcript, SAT or ACT scores, essay, guidance counselor recommendation form and application fee.

Applying by the priority deadline is encouraged. For updated deadline information, please visit: www.admissio
www.admissions.umd.edu/admissions/apply/application_deadlines.asp.

Financial Aid Applications

The priority deadline for Financial Aid is February 15. Students seeking financial assistance should complete the FAFSA **before** receiving their letter of admission. More information is available about Financial Aid in Chapter 2.

Early Admission Options for High-Achieving High School Students

Concurrent Enrollment: Talented high school seniors have the opportunity to enroll at the University of Maryland for two courses, or seven credits, each semester. Successful applicants will have pursued a rigorous high school program and will have indicated exceptional performance and ability achieved over time. To apply, students must submit: the completed application and fee; high school transcript; an essay explaining why they are interested in the program; a letter of recommendation from the high school; and a letter of permission from the parents or guardian. Students must live within commuting distance. Tuition is assessed on a per-credit-hour basis. All mandatory fees apply in full.

Summer Enrollment: High school students with a strong high school record may be considered for enrollment in courses during the summer preceding their junior or senior year. They must file a regular application for undergraduate admission, including an official high school transcript. Tuition is assessed on a per-credit-hour basis. All mandatory fees apply in full.

Application Deadlines:

Spring: January 2
Summer: May 1
Fall: August 1

Early Admission: Although the University of Maryland generally requires applicants to earn a high school diploma prior to their first full-time registration, the university will admit a limited number of well-qualified students without high school diplomas. Successful applicants will have pursued a rigorous high school program and will have indicated exceptional performance and ability achieved over time. Students must be within two credits of high school graduation and have the commitment of the high school to award a diploma after successful completion of the freshman year at Maryland. To apply, students must submit: the completed application and fee, high school transcript and SAT or ACT results, an essay explaining how they will benefit from the program, and a letter of permission from the parents or guardian and a letter of support from the high school. Early admission students are eligible for on-campus housing, scholarships based on academic achievement, the University Honors Program, and College Park Scholars. Early application is advised.

High School Equivalency Examination (GED)

Maryland residents who are at least 16 years of age and who have not received a high school diploma may be considered for admission provided they have earned the high school General Education Equivalency (GED) certificate. In order to be considered for admission, the applicant must present an above average total score as well as above average scores on each of the five parts of the test.

Non-Accredited/Non-Approved High School

Students from non-accredited/non-approved high schools who seek admission to the University of Maryland should contact the Office of Undergraduate Admissions for information.

Home-Schooled Students

Home-schooled applicants should meet the same minimum high school course requirements expected of all applicants. Additional information from home-schooled students is required in the following areas of the application:

> ***Transcript:*** should provide course descriptions, books used, methods of evaluation, and the grades received, as well as a statement providing general information about the home-school curriculum. If college-level courses have been taken simultaneously an official college transcript should be included with the application.
>
> ***Letters of Recommendation:*** the University of Maryland requires two recommendations from all freshman applicants. In the case of home-schooled students these recommendations can be provided by 1) and individual acting in a supervisory or evaluative capacity with regard to the student's curriculum, and 2) from a teacher in any setting (home-school program, community college course, etc.).

ADVANCED PLACEMENT (AP) CREDIT

The University of Maryland encourages applicants to seek AP credit so that academically successful students may move forward in their programs at an appropriate pace. However, credit is not granted for all exams offered by the College Board. Credits are accepted and courses are exempted, based on departmental approval, according to the chart below. Students should arrange to have their scores sent directly to the University of Maryland from the Educational Testing Service; the code is 5814. Students should also inform their advisors at Orientation that they anticipate receiving AP credit because this information may affect their placement in subject-matter courses.

If a student has already received AP credit at another institution, this credit will be reevaluated. The score received must be equivalent to the minimum score the University of Maryland accepted at the time the test was taken; otherwise, the credit will not be eligible for transfer. AP credits that are accepted are recorded as transfer credit on University of Maryland records and figure in the total number of credits earned toward graduation. Students may not receive AP credit for an equivalent course taken at the University of Maryland or elsewhere. If students earn credit in a course equivalent to an AP exam for which they also earned credit, the AP credit will be deleted from their records. Students should check with their advisors for detailed information on the assignment of AP credit.

Please note that the chart represents a general outline of AP credit. In all cases, credit is available only for grades of 3 or higher, subject to ongoing departmental reevaluation. All departments reserve the right to reevaluate the content of exams and to change the assignment of credit and course equivalencies. Any new exams offered after February 15 may or may not be evaluated by the appropriate department. Students should check with their advisor at Orientation.

Certain departments, particularly Mathematics and Physics, have separate criteria for placement in courses and the assignment of credit. Students should check with those departments for additional information. All entering freshmen will be placed in math courses according to the University of Maryland math placement exam.

2009 - 2010 University of Maryland Advanced Placement (AP) Exams and Credit Table

AP Exam Title	Score	Related Course	Cr	Maj	Core	Note
Art History	3,4,5	ARTH 100	3	No	Yes	ARTH 100 fills CORE-Arts requirement. Contact department for placement, 405-1479.
Art						Students interested in establishing credit for specific courses must submit portfolio for evaluation; call 405-1442
Drawing	4,5	ARTT 110	3	Yes	No	
General	4,5	LL Elective	3	No	No	
Biology	4	BSCI 105 **and**	8	Yes	Yes	BSCI fills a major requirement in all Life Sciences; it also fills CORE-Lab (Life) Science requirements. Contact the College of Life Sciences for placement, 405-2080.
		LL Elective				
	5	BSCI 105 **and**	8	Yes	Yes	
		BSCI 106				
Chemistry	4	CHEM 131/132	4	Yes	Yes	CHEM fills a major requirement in all Life Sciences; it also fills CORE-Lab (Physical) Science requirement. Contact department for placement, 405-1791.
	5	CHEM 131/132 and	6	Yes	Yes	
		CHEM 271		N/A	N/A	
Computer Science						

JAVA (2004+) A	5	LL Elective	4	No	No	Credit will be given for either the A or the AB exam, not both. Credit may be earned for both the C++ and JAVA exams. Students receiving an acceptable score on the JAVA exam (5 on A, 4 or 5 on AB) are exempt from CMSC131. Contact department for placement, 405-2672.
JAVA (2004+) AB	4,5	LL Elective	4	No	No	
C++ (pre-2004) A	4,5	LL Elective	4	No	No	
C++ (pre-2004) AB	4	LL Elective	4	No	No	
	5	LL Elective	6	No	No	
Economics						Economics majors must score 4 or 5 to receive credit toward the major. Either ECON fills one of two CORE-Social/Behavioral Science requirements. Contact department for placement, 405-3513
Macroeconomics	4,5	ECON 201	3	Yes	Yes	
Microeconomics	3	ECON 105	3	No	Yes	
	4,5	ECON 200	3	Yes	Yes	
English						Students with score of 4 or 5 on Lang and Comp exam satisfy CORE-Fundamental Studies Freshman Writing requirement (*ENGL 101). Students with credit for the Language exam may not receive credit for ENGL 291 or its equivalent. ENGL 240 fills CORE-Literature requirement. Contact department for placement, 405-3825.
Literature & Comp	3	LL Elective	3	No	No	
	4,5	LL Elective and	6	No	No	
		ENGL 240		Yes	Yes	
Language & Comp	3	LL Elective	3	No	No	
	4,5	ENGL 101	3	No	*	
Env. Science	4,5	LL Elective	3	No	Yes	ENSP101 fills CORE-Physical Science requirement.
French						Language: Students with score of 4 who wish to continue should enroll in FREN 204; with score of 5 must enroll in FREN 250 or higher. Literature: Students with score of 4 should enroll in FREN 250; with score of 5 may enroll in 300-level courses. FREN 203, 204 or 211 fills
Language	4	FREN 203	4	No	Yes	
	5	FREN 204 **and**	6	Yes	Yes	
		FREN 211		No	Yes	

Literature	4	FREN 204	3	Yes	Yes	CORE-Humanities requirement; FREN 250 fills CORE-Literature requirement. Contact department for placement, 405-4034.
	5	FREN 204 **and**	6	Yes	Yes	
		FREN 250		Yes	Yes	
Geography, Human	4,5	GEOG 202	3	Yes	Yes	GEOG 202 fills one of two CORE Social/Behavioral Science requirements. Contact department for placement 405-4073.
German	4	GERM 203	4	No	Yes	Students with score of 4 who wish to continue must enroll in GERM 204; with score of 5 must enroll in GERM 301. Contact department for placement, 405-4091.
	5	GERM 203 **and**	7	No	Yes	
		GERM 204		Yes	Yes	
Gov't & Politics						GVPT 170 fills one of two CORE-Social/Behavioral Science requirements. Contact department for placement, 405-4124.
United States	3,4,5	GVPT 170	3	Yes	Yes	
Comparative	3,4,5	GVPT 280	3	Yes	No	
History						U.S. History: A score of 4 will be awarded three credits as chosen by the student (HIST 156 **or** HIST 157). A score of 5 will be awarded six credits (HIST 156 **and** 157). Either fills CORE-History requirement.
United States	4	HIST 156 **or**	3	Yes	Yes	
		HIST 157		Yes	Yes	
	5	HIST 156 **and**	6	Yes	Yes	
		HIST 157		Yes	Yes	
European	4	HIST 112 **or**	3	Yes	Yes	European History: A score of 4 will be awarded 3 credits as chosen by the student (HIST 112 **or** HIST 113). A score of 5 will be awarded 6 credits (HIST 112 **and** HIST 113). HIST 112 fills CORE-Humanities requirement; HIST 113 fills CORE-History requirement.
		HIST 113		Yes	Yes	
	5	HIST 112 **and**	6	Yes	Yes	
		HIST 113		Yes	Yes	
World	4,5	HIST 219	3	Yes	Yes	World History: fills CORE-History requirement; see department for placement, 405-4272.

Italian	4,5					Under review; contact department for placement. 405-4031.
Latin						Students with score of 4 or 5 in any AP Latin test may not take LATN201 or lower for credit. Students with score of 4 or 5 in more than one AP Latin test may receive additional credit. Contact department for placement and credit adjustment, 405-2013.
Vergil	4,5	LATN 201	4	Yes	Yes	
Catullus & Cicero	4,5	LATN 201	4	Yes	Yes	
Catullus & Horace	4,5	LATN 201	4	Yes	Yes	
Catullus & Ovid	4,5	LATN 201	4	Yes	Yes	
Mathematics						*MATH 141 may be completed through credit-by-exam. MATH 140 fills both CORE-Fundamental Studies Math requirement and CORE-Math & Formal Reasoning non-lab requirement. Students who receive credit for MATH 140 or 140 & 141 may not receive credit for MATH 220 or 220 & 221. Contact department for placement, 405-5053.
Calculus AB	4,5	MATH 140*	4	Yes	Yes	
Calculus BC	4,5	MATH 140 **and**	8	Yes	Yes	
		MATH 141		Yes	Yes	
Calculus BC with AB Subscore	4,5	MATH 140	4	Yes	Yes	The Calculus BC w/ AP subscore is treated as if the BC exam was the AB exam. Students may not receive AB subscore credit if credit was awarded for the BC exam.
Music						MUSC 130 or 140 fills CORE-Arts History/Theory requirement. Majors should contact department for placement, 405-5563.
Listening/Literature	3,4,5	MUSC 130	3	No	Yes	
Theory	4 5	MUSC 140 MUSC 150	3	No No	Yes No	
Physics						PHYS 121 and 122 fulfill CORELab (Physical) Science requirement. Physics C exams fulfill major requirements in Life Sciences, Engineering, or Physics; they also fulfill the CORELab (Physical) Science
Physics B	4,5	PHYS 121 **and**	8	No	Yes	
		PHYS 122		No	Yes	
Physics C						
Mechanics	4,5	PHYS 141 **or**	4	No	Yes	
		PHYS 161 **or**		Yes	Yes	

		PHYS 171		Yes	Yes	requirement. A score of 4 or 5 on the Physics C exams will be awarded four credits as chosen by the student and his/her advisor. Students must have credit for AP Calculus BC to take the next course in sequence. Contact department for placement, 4055979.
Elec./Magnet.	4	PHYS 142 **or**	4	No	Yes	
		PHYS 260/1		Yes	Yes	
	5	PHYS 142 **or**	4	No	Yes	
		PHYS 260/1 **or**		Yes	Yes	
		PHYS 272		Yes	Yes	
Psychology	4,5	PYSC 100	3	Yes	Yes	The AP exam counts towards the 35 required major credits. If a student enters with AP credit, s/he must complete PSYC221 with a grade of B or better. PSYC 100 fills one of two CORE - Social / Behavioral Science requirements. Contact department for placement, 405-5866.
Spanish						Language: Students with score of 4 who wish to continue must enroll in SPAN 204, 211 or 207; with score of 5 must enroll in 300-level courses. Literature: Students with score of 4 or 5 must enroll in 300-level courses. CORE: SPAN 203 or 204 fills CORE-Humanities requirement; SPAN 221 fills CORE-Literature requirement. Contact department for placement, 405-6452.
Language	4	SPAN 203	4	No	Yes	
	5	SPAN 204 **and**	6	No	Yes	
		SPAN 207		Yes	No	
Literature	4	SPAN 221	3	Yes	Yes	
	5	SPAN 207 **and**	6	Yes	No	
		SPAN 221		Yes	Yes	
Statistics	4,5	STAT 100	3	*	Yes	STAT 100 fills CORE Fundamental Math requirement and COREMath & Formal Reasoning nonlab requirement. * STAT 100 fills program requirements in certain majors. Consult advisor.

Please Note: LL refers to courses at the lower (100 and 200) level. Students may not receive credit for

AP courses and equivalent UMCP courses or transfer courses (including IB or CLEP). Credit will be deleted in such cases. Decisions about applicability of courses to CORE are updated on an ongoing basis. Consult Schedule of Classes for most recent information. Native speakers may not earn AP credit for French, German or Spanish language exams.

INTERNATIONAL BACCALAUREATE EXAMS (IB) AND CREDIT TABLE

2009-2010

The University of Maryland awards credit to students who sit for International Baccalaureate exams according to the table below. Interested students should contact the Office of Undergraduate Admissions for additional information. Note: Credit awards and course equivalencies are subject to change

International Baccalaureate Exams (IB) and Credit Table

IB Exam Title	Score	Related Course	Cr	Maj	Core	Notes
Anthropology Higher	5,6,7	See Notes				Under review. Students interested in Anthropology should contact an advisor for placement.
Art Design Higher	5,6,7	See Notes				Under review. Students interested in Art should contact an advisor for placement.
Biology						
Higher	5	LL Elective	4	No	No	BSCI 105 fills a major requirement in all Life Sciences; also fills CORE-Lab (Life) Science requirement. Contact the College of Life Sciences for placement, 405-2080.
Higher	6,7	BSCI 105 & LL Elective	8	Yes	Yes	
Chemistry						
Either	5	CHEM 131 & CHEM 132	4	Yes	Yes	CHEM fills requirement for all Life Science majors; also fills CORE-Lab (Physical) Science requirement. Contact department for placement, 405-1791.
Either	6,7	CHEM 131 & CHEM 132 &	6	Yes	Yes	
		CHEM 271		Yes	No	
Computing Higher	5,6,7		3		No	Contact department for placement, 405-2672.
Economics						
Higher	5	ECON 205	3		Yes	ECON majors must score 6 or 7 to receive credit toward major. ECON fills one of two CORE-Social/Behavioral Science requirements. Contact department for placement, 405-3513.
Higher	6,7	ECON 200 & ECON 201	6	Yes	Yes	
English A/B Higher	5,6,7	ENGL 240	3	Yes	Yes	ENGL 240 satisfies CORE-Literature requirement. Contact department for placement, 405-3825.
Env. Studies Higher	6,7	See Notes	3			Under review. Students interested in Environmental Science or Policy should contact an advisor for placement.
French						Standard: Students with score of 5 who wish to continue should enroll in FREN 204; with score of 6 or 7 should enroll in FREN
Standard	5	FREN 203	4	No	Yes	

Standard	6,7	FREN 204 &	6	Yes	Yes	250 or higher level courses. Higher: Students with score of 5, 6 or 7 may enroll in 300-level courses. FREN 203, 204 or 211 fills CORE-Humanities requirement; FREN 250 fills CORE-Literature requirement. Contact department for placement, 405-4034.
		FREN 211		No	Yes	
Higher	5	FREN 204 & FREN 250	6	Yes	Yes	
Higher	6,7	FREN 204 & FREN 250 &	9	Yes	Yes	
		FREN 211		No	Yes	
Geography Either	5,6,7	GEOG 100	3	No	Yes	GEOG 100 satisfies one of two CORE-Social/Behavioral Science requirements. Contact department for placement, 405-4053.
German						Students with score of 5 who wish to continue must enroll in GERM 204; with score of 6 or 7 must enroll in GERM 301. Contact department for placement, 405-4091.
Higher	5	GERM 203	4	No	No	
Higher	6,7	GERM 203 & GERM 204	7	No	No	
History (Higher)						A score of 5 will be awarded three credits (as chosen by the student--except for West & South Asia). A score of 6 or 7 will be awarded six credits. All HIST courses listed at left fulfill CORE-History requirement. HIST112 fills CORE-Humanities/ Other. HIST 120, 122, 123, 284 and 285 also fulfill Diversity requirement.
Africa	5	HIST 122 or HIST 123	3	Yes	Yes	
	6,7	HIST 122 **&** **&** HIST 123	6	Yes	Yes	
Americas	5	HIST 156 **or** HIST 157	3	Yes	Yes	
	6,7	HIST 156 **&** **&** HIST 157	6	Yes	Yes	
Europe	5	HIST 112 **or** **or** HIST 113	3	Yes	Yes	
	6,7	HIST 112 **&** **&** HIST 113	6	Yes	Yes	
E/SE Asia	5	HIST 284 **or** HIST 285	3	Yes	Yes	
	6,7	HIST 284 **&** **&** HIST 285	6	Yes	Yes	
Islamic World	5,6,7	HIST 120	3	Yes	Yes	
West Asia	5	HIST 120	3	Yes	Yes	

	6,7	HIST 120 & & LL Elective	6	Yes	Yes	
Italian						Standard: Students with score of 5 who wish to continue must enroll in ITAL 204; with score of 6 or 7 may enroll in 300-level courses. Higher: Students with score of 5, 6 or 7 must enroll in 300-level courses. ITAL 203 or 204 fills CORE-Humanities requirement; ITAL 251 fills CORE-Literature requirement. Contact department for placement, 405-4031.
Standard	5	ITAL 203	4	No	Yes	
Standard	6,7	ITAL 204 &	6	Yes	Yes	
		ITAL 211		Yes	No	
Higher	5	ITAL 204 & ITAL 251	6	Yes	Yes	
Higher	6,7	ITAL 204 & ITAL 251 &	9	Yes	Yes	
		ITAL 211		Yes	No	
Info. Tech.		See Notes				No credit is awarded for this exam at this time.
Latin Either	5,6,7	LATN 201	4	Yes	Yes	Contact department for placement, 405-2013.
Mathematics						Standard: No credit, but placement in MATH 220 is awarded. Higher Higher: MATH 141 may be completed via credit-by-exam. MATH 140 fills both CORE-Fundamental Studies Math requirement and CORE-Math & Formal Reasoning non-lab requirement. Contact department with questions, 405-5053.
Standard	5,6,7	See Notes	0	No	No	
Higher	5,6,7	MATH 140	7	Yes	Yes	
Music Either	5,6,7	MUSC 130	3	No	Yes	MUSC 130 fills CORE-Arts requirement. Majors should contact department for placement, 405-5563.
Philosophy Higher	6,7	PHIL 100	3	Yes	Yes	PHIL 100 fills CORE-Humanities requirement.
Physics Higher	5, 6,7	PHYS 121 & 122	8	Yes	Yes	PHYS220 and 221 fill CORE-Lab (Physical) science requirements. Students continuing Physics study should consult department for placement, 405-5979.
Psychology Either	6,7	PSYC 100	3	Yes	Yes	The IB exam counts towards the 35 credits required in the major. If a student enters with IB credit, s/he must complete PSYC221 with a grade of B or better. PSYC 100 fills one of two CORE-Social/Behavioral Science requirements. Contact department for placement, 405-5866.
Spanish						Standard: Students with score of 5 who wish to continue must enroll in SPAN 204, 211 or 207; with score of 6 or 7 must enroll in 300-level courses. Higher: Students with score of 5, 6 or 7 must enroll in 300-level courses. SPAN 203 or 204 fills CORE-Humanities requirement. SPAN 221 fills CORE-Literature requirement. Students continuing Spanish study should consult department for placement, 405-6452.
Standard	5	SPAN 203	4	No	Yes	
Standard	6,7	SPAN 204 &	6	No	Yes	
		SPAN 207		Yes	No	
Higher	5	SPAN 204 &	6	No	Yes	
		SPAN 221		Yes	Yes	
Higher	6,7	SPAN 204 &	9	No	Yes	

		SPAN 207 &		Yes	No	
		SPAN 221		Yes	Yes	
Swahili Either	6,7	FOLA 159	6	No	No	Elective credit in the FOLA program. Students who wish to continue should contact the FOLA office in Jiminez Hall.
Theatre Higher	5,6,7	THET 110	3	No	Yes	THET 110 fills CORE-Arts requirement. Majors should contact department for placement, 405-6694.

Please Note: LL refers to courses at the lower (100 and 200) level. Students may not receive credit for IB courses and for equivalent UMCP courses or transfer courses (including AP or CLEP). IB credit will be deleted in such cases. Decisions about applicability of courses to CORE are updated on an ongoing basis. Consult Schedule of Classes for most recent information. Native speakers may not earn IB credit for any language exams.

Students who receive an International Baccalaureate Diploma or Certificate may consider presenting a portfolio to the Freshman Writing Office for review. See the Department of English web site or call the Freshman Writing Office, 405-3771, for further information.

ADMISSION TO LIMITED ENROLLMENT PROGRAMS (LEP)

Certain colleges, schools, and departments within the university have taken steps to limit enrollment in order to maintain quality programs. These include the School of Architecture, Planning and Preservation, Robert H. Smith School of Business, A. James Clark School of Engineering, Department of Government and Politics, Philip Merrill College of Journalism, Department of Natural Resource Sciences and Landscape Architecture, Department of Psychology and Department of Communication. LEP programs are continually reviewed. Students should check the LEP Web site at www.lep.umd.edu or contact the Limited Enrollment Program Admissions Coordinator at 301-314-8385 for updated information.

Freshmen: Admission for new freshmen to Limited Enrollment Programs is competitive. Because space may be limited for a particular major, early application is encouraged. Freshmen who are directly admitted to an LEP will be subject to a performance review when they complete 45 college credits. The review varies from program to program, but always includes satisfactory performance in a set of appropriate courses. Students not passing the review will be required to choose another major. See the academic program description for specific details.

Freshmen not directly admitted to an LEP may be assigned to Letters and Sciences or to a general major within the LEP college requested. Students are not guaranteed admission to an LEP at a later date, although they may gain admission by meeting the requirements outlined in their particular program by the time they complete 45 or 60 credits at Maryland. See the following section on LEP transfer admission and the LEP program descriptions for further details about this option.

Transfers: Transfer students and on-campus students wishing to change their major to an LEP must meet a set of gateway courses with minimum grades in order to be admitted to the program. Space is limited in each program, and the most qualified applicants will be admitted each semester. Additional information for each of the Limited Enrollment Programs may be found in the descriptions of academic majors in chapter 7.

Transfer students who are not directly admissible to an LEP upon application to the university will be assigned to an alternate program. Those with fewer than 60 credits will be assigned to Letters and Sciences, and will be allowed the opportunity to meet the gateway requirements by the time they complete 45 or 60 credits. Students with more than 60 credits will be admitted to an interim advising program in Letters and Sciences where they will be advised regarding their qualifications for the LEP and, in some cases, the need to choose another major.

Second Major: Enrolled students interested in adding an LEP as a second major should see "Degree Requirements" in chapter 4.

Pre-Professional Programs

While professional schools do not require, favor, or prefer specific majors, pre-professional advisors can provide guidance concerning the choice of major. Undecided students may enter Letters and Sciences, but must adhere to the University of Maryland policy, that students declare a degree-granting major by the time they reach 60 credits. See www.ltsc.umd.edu/

For further information on pre-professional programs, see "Other for Credit Programs" in Chapter 7, www.prelaw.umd.edu or www.prehealth.umd.edu.

SPECIAL APPLICANTS

Golden Identification Card Program

The University of Maryland participates in the Golden Identification Card Program. The institution will make available courses and various services to persons who are 60 years of age or older, who are legal residents of the State of Maryland and who are retired (not engaged in gainful employment for more than 20 hours per week). When persons eligible for this program are admitted to the university, they register on a space-available basis for credit courses as regular or special students in any session and receive a Golden Identification card. Golden ID students must meet all course prerequisite and co-requisite requirements. Tuition is waived for these courses; however, a Golden ID administrative fee is assessed every semester. Golden ID students may register for a maximum of three courses per term. Golden ID students are not eligible for Consortium courses. The Golden Identification Card will entitle eligible persons to certain academic services, including the use of the libraries and the shuttle bus service. Such services will be available during any session only to persons who have registered for one or more courses for that semester. Golden ID students also have the opportunity to become involved with the Golden ID Student Association, which provides cultural and social events, course recommendations, and peer advising. Additional information may be obtained from the Office of Undergraduate Admissions at 301-314-8385.

Non-Degree Seeking Students

Applicants who qualify for admission but do not desire to work toward a baccalaureate degree may be admitted as non-degree-seeking students.

Non-degree-seeking students who have received a baccalaureate degree are advised that no credit earned while enrolled may be applied at a later date to a graduate program. These post-baccalaureate students may enroll in undergraduate courses for which they possess the necessary prerequisites, but may not enroll in courses restricted to graduate students only. Students who wish to take courses at the graduate level (600 and above) must contact the Graduate School for information concerning admission requirements for Advanced Special Student status.

Non-degree-seeking students who do not have a baccalaureate degree must submit transcripts and meet regular admission standards. Transcripts are not required from students with baccalaureate degrees from a regionally accredited institution. Because of space limitation, several departments require permission be given in advance to register for classes as a non-degree student. Please contact the Office of Undergraduate Admissions for further information.

Non-degree-seeking students who are taking classes to transfer immediately back to another institution may apply without academic transcripts. These applicants must, in lieu of transcripts, submit official documentation from that institution granting permission to take course work at the University of Maryland for that particular semester.

Returning Students and Veterans

Applicants who have not attended school for more than five years, or who have had military experience, should contact both an admissions counselor and the Returning Students Program: 301-314-7693. Veterans should also contact the the University of Maryland Veterans Certification Office: 301-314-8239.

Students returning to the University of Maryland after a separation of five calendar years may petition the appropriate dean to have a number of grades and credits from courses previously taken at the University of Maryland, College Park, removed from the calculation of their cumulative grade point averages and from the credits applied toward graduation requirements. See information under "Registration, Academic Requirements and Regulations" in chapter 4.

INTERNATIONAL STUDENT ADMISSION

The University of Maryland seeks to enroll international students who demonstrate strong academic performance with records suggesting potential for success at Maryland. Admission is competitive and is offered to applicants whose academic credentials indicate marks of "very good" to "excellent." Due to space limitations and the competitive nature of undergraduate admission at the University of Maryland, an international applicant should submit a complete application as early as possible, and always before the deadlines listed in this section. Applications completed after a deadline will not be considered for that semester, but will be reviewed for the following semester. Evaluation of an applicant's credentials will take place only after all application materials are received. Decisions are released in writing on a rolling basis.

Applicants currently holding or intending to seek an F-1 Student or J-1 Exchange Visitor visa to study in the United States are considered international applicants and should observe the following instructions. All other non-immigrant visa holders (including A, E, G, H, I, and L) should follow the Freshman and Transfer instructions preceding and following the International Student Admission section

Freshman Admission - International

You are considered a freshman applicant if you have completed fewer than 12 semester hours of university-level credit past secondary school at the time you plan to enter the University of Maryland. Successful freshman applicants demonstrate satisfactory completion of diverse college-preparatory subjects in secondary school, proficiency in English, and evidence of sufficient funds to cover all expenses. Due to space limitations, we are unable to offer admission to all students who have the ability to be successful academically at the University of Maryland.

The Fall (August) deadline for applications to be received is December 1. The Spring (January) general deadline is August 1.

All of the following documents must be submitted before the freshman final deadline for an applicant to be considered for undergraduate admission: International Student Application for Undergraduate Admission; nonrefundable application fee (U.S. $55.00); official secondary school transcripts in native language with certified literal English translations and, where appropriate, official results and certificate of completion from a national secondary school examination; all official university or college transcripts in native language with certified literal English translations (if any); proof of English proficiency; SAT or ACT official results ; statement of activities; an essay; and Certification of Finances, including supporting documents that demonstrate support of U.S. $40,191 per year. Current F-1 and J-1 Visa Holders must also provide photocopies of their I-94 Arrival/Departure Record, visa stamp, and current I-20 or DS-2019 form. Current other non-immigrant Visa Holders must also provide photocopies of their I-94 Arrival/Departure Record and visa stamp.

Transfer Admission - International

You are considered a transfer applicant if you have completed 12 or more semester hours of university-level credit past secondary school at the time you plan to enter the University of Maryland. Students who have completed fewer than 28 transferable credits must submit high school transcripts. Successful transfer applicants demonstrate better than average grades in strong academic courses, proficiency in English, and evidence of sufficient funds to cover all expenses. Due to space limitations, we are unable to offer admission to all students who have the ability to be academically successful at the University of Maryland.

The Fall final deadline for applications to be received is March 1. The Spring (January) final deadline is August 1.

All of the following documents must be submitted before the transfer final deadline for an applicant to be considered for undergraduate admission: International Student Application for Undergraduate Admission; nonrefundable application fee (U.S. $55.00); all official university or college transcripts in native language with certified literal English translations; proof of English proficiency; statement of activities; and Certification of Finances, including supporting documents that demonstrate support of U.S. $40,191 per year. Current F-1 and J-1 Visa Holders must also provide photocopies of their I-94 Arrival/Departure Record, visa stamp, and current I-20 or DS-2019 form. Current other non-immigrant Visa Holders must also provide photocopies of their I-94 Arrival/Departure Record and visa stamp. Students with fewer than 28 semester hours must also provide official secondary school transcripts in native language with certified literal English translations, SAT scores, and, where appropriate, official results and certificate of completion from a national secondary school examination.

English Proficiency

Non-native English speakers (regardless of citizenship) who seek admission to the University of Maryland must verify their proficiency in English by taking and submitting an official score report from one of the following English proficiency exams: TOEFL (Test of English as a Foreign Language); or IELTS (International English Language Test System). Those whose native language is not English, who earn an SAT critical reading score of 480 or higher, or who have earned a post-secondary degree from a university in an English-speaking country do not need to take or submit scores from an English proficiency exam. Transfer credit for an English composition course from an U.S. institutions does not waive the English proficiency exam.

Visa Records

Applicants Residing Outside of the United States: To enter the United States, international students residing abroad will need a passport from their government and a visa from the U.S. Consulate. In order to obtain a visa for the purposes of studying in the United States, the applicant must present a Certificate of Eligibility form to the U.S. Consulate. The university will issue this form to admitted students who have submitted proof of having sufficient funds to cover the cost of a program of study. Admitted students with personal, family, or other source of private funding will be issued the Certificate of Eligibility form I-20 in order to obtain the F-1 Student Visa. Admitted students who are sponsored by agencies, foundations, or their home government, or are participating in an established exchange program may be issued the Certificate of Eligibility form DS-2019 in order to obtain the J-1 Exchange Visitor Visa.

Applicants Currently Residing in the United States: Applicants currently holding F-1 Student or J-1 Exchange Visitor status in the United States need to submit a photocopy of their I-94 Arrival/Departure Record, visa stamp, and current I-20 or DS-2019 form along with proof of having sufficient funds to cover the cost of a program of study. Applicants holding another type of non-immigrant status need to submit a photocopy of their I-94 Arrival/Departure Record and visa stamp, and must indicate if they intend to seek a change to F-1 Student or J-1 Exchange Visitor status. Upon admission and submission of the appropriate financial support documentation, the university will issue the appropriate Certificate of Eligibility form (I-20 or DS-2019) to the student.

General Certificate of Education/The West African Examinations Council (WAEC) Exams

The University of Maryland awards between 4 and 8 semester credits for most A-level exams completed with a grade of C or better. Up to 4 semester credits may be awarded for certain AS-level exams completed with acceptable grades. For further information, contact the Office of International Education Services via email at iesadv@deans.umd.edu or 301-314-7740.

TRANSFER ADMISSION

A student who has attended any regionally accredited institution of higher education following graduation from high school and attempted 12 or more credits will be considered for admission as a transfer student. Transfer applicants must be in good academic and disciplinary standing at their previous institutions to be eligible for transfer to the University of Maryland.

When the number of students desiring admission exceeds the number that can be accommodated at this institution, or in a particular professional or specialized program, admission will be based on the overall strength of the student's academic performance.

Requirements

Admission for transfer applicants is primarily based on the number of credits a student has earned and academic achievement for all college-level work. In calculating eligibility, the university will use the average stated on the transcript by the sending institution. When an applicant has attended more than one institution, a cumulative average for all previous college work attempted will be computed. To be considered, course work must have been completed at a regionally accredited college or university. All students with grade point averages below 3.0 will be considered on a space-available basis. Students who were not admissible as high school seniors must complete at least 30 semester hours with the grade point average as stated above. In accordance with Maryland Higher Education Commission and Board of Regents transfer policies, applicants from Maryland public institutions are, in some instances, given special consideration, and, when qualified and space is available, may be admitted with a cumulative grade point average of 2.0 or higher.

Application Dates

Semester	***Date***
Spring	November 15 (August 1 with any non-US academic records)
Fall Priority	March 1 (Students with non-US academic records must apply by this date)
Fall	June 1

Transfer from Maryland Public Institutions

Currently, applicants who have attended Maryland public institutions may be admitted in accordance with the criteria outlined in the previous paragraph. The university subscribes to the policies set forth in the Maryland Higher Education Commission (MHEC) and Board of Regents transfer policies. When the number of students desiring admission exceeds the number that can be accommodated in a particular professional or specialized program, admission will be based on criteria developed by the university to select the best qualified students.

Articulated transfer programs are available at each Maryland community college. An articulated transfer program is a list of courses that best prepare applicants for a particular course of study at the University of Maryland. Applicants who take appropriate courses specified in the articulated program and earn acceptable grades are guaranteed transfer with no loss of credit. Articulated transfer programs help students plan their new programs after changing career objectives. More information about ARTSYS, the articulation system, is available online at http://artweb.usmd.edu/. Applicants can eliminate all doubt concerning transfer of courses by following articulated programs.

General Transfer Information

Admitted students will receive a preliminary review of transfer credit within two weeks after receiving the letter of admission. An official review of transfer credit occurs thereafter, with final determination of applicability made by an academic advisor/evaluator in the office of the appropriate dean for the major. Generally, college-level courses completed at regionally-accredited institutions will transfer provided that grades of at least "C" (2.0) are earned and the course is similar in content and scope to work offered at Maryland. The regional accrediting bodies are Middle States Association of Colleges and Schools, New England Association of Schools and Colleges, North Central Association of Colleges and Schools, Northwest Association of Schools and Colleges, Southern Association of Colleges and Schools, and Western Association of Schools and Colleges. Up to 60 credits from a community or two-year college, and 90 credits from a four-year college, may be applied toward the degree. Students are required to complete at least their final 30 credits at Maryland to earn a University of Maryland degree.

Transfer of course work completed at Maryland public colleges and universities is covered by the Maryland Higher Education Commission (MHEC) transfer policies (see complete text later in this section). Maryland will accept grades of "D" or better from appropriate course work completed at a regionally-accredited Maryland public institution, including other institutions in the University System of Maryland.

The Transfer Credit Center provides articulation information and assistance to students and transfer advisors. The Center, a joint effort between the Offices of Undergraduate Admissions and the Office of the Registrar, has computerized and consolidated the transfer credit evaluation process. It provides incoming students from domestic institutions with information on acceptability of credits and transfer equivalencies, subject to adjustment by advisors within the student's individual program. Certain courses (e.g., those not appearing or not fully elaborated in the sending institution's current catalog) may require additional information such as syllabi, portfolios, etc., before evaluation.

Information on transferability of specific courses to the University of Maryland, College Park may be accessed on the web at www.tce.umd.edu/TCE/.

Each college-level course will be evaluated individually, with applicability toward major or general education requirements determined by the appropriate academic unit. The university does not transfer blocks of courses, such as those completed through the Associate's Degree. See "Departments, Majors and Programs" for specific general education and major requirements.

Credit will be posted to your Maryland record only from official transcripts sent from the institution at which the credit was completed. Students who have earned credit through Advanced Placement (AP), International Baccalaureate (IB), or College-Level Examination Program (CLEP) subject area exams must have scores sent directly from the testing board, even if they are already posted on a transcript from another institution.

SOURCE	**ACCEPT CREDITS?**	**EQUIVALENT OR REQUIRED CREDITS**	**GRADES/SCORES WHERE APPROPRIATE**
Note: Some transfer credit policies are under review. Please call Undergraduate Admissions for current information.			
ACE Non Collegiate Courses	No		
Advanced Placement Program (CEEB)	Yes	E or R[1]	3 or higher (see chart in Chapter 1)
CLEP	Yes	E or R[1]	See chart in Chapter 4

Community College of the Air Force	Yes	E or R[1]	C (2.0) or higher equivalent grade as appropriate to dept.
Correspondence courses	No		
Dantes	No		
Defense	Yes Language Institute	E or R[1]	Scores as appropriate to department
Departmental exams from other colleges	Yes	E or R[1]	C (2.0) or higher
International Baccalaurate	Yes	E or R[1]	5 or higher (see chart in Chapter 1)
Life experience	No, unless validated through CLEP or University of Maryland, College Park departmental exam		
Military credit	No		
Nursing school courses: by transfer/by challenge exam	No[2]		
Other articulation agreements (propriety schools, public agencies, etc.)	No, unless a newly-formed Maryland public institution operating under auspices of MHEC		
PONSI non-collegiate work	No		
Portfolio credits from other colleges	No		

1. Courses must be similar in depth and scope to University of Maryland courses. Applicability is determined by the appropriate dean.
2. Professional courses are generally not transferable. Course taken at a regionally-accredited institution may be reviewed by the appropriate dean.

Statement on Transfer of Course Credit
The University of Maryland welcomes transfer students and has transfer agreements (sometimes referred to as "articulation" agreements) to encourage and aid students in their efforts to take appropriate courses prior to transfer. Each course is evaluated individually for students seeking to transfer to the University of Maryland. Credit is granted for courses that are applicable to a Bachelor of Arts or Bachelor of Science degree, and for which a grade of "C" or above was earned. Courses completed at Maryland public two- or four-year institutions may be transferred with grades of "D" or above provided that course content is appropriate to our academic programs.

Maximum Number of Transfer Credits Accepted
The University of Maryland has direct transfer agreements with all Maryland community colleges, as well as other junior and community colleges outside of the state. The university will accept for transfer a maximum of 60 credits from a two-year program and 90 credits from a four-year program for courses in which a grade of "C" or above was earned and which are appropriate to an approved curriculum at this institution. See the above paragraph for required course grades.

Maximum Number of Credits Allowed for Non-Traditional Learning
Students who have acquired college-level learning through work or other non-collegiate activities may wish

to translate their experience into credits at Maryland by validation through the national CLEP examination (College-Level Examination Program) or credit-by-examination administered by academic departments. The university will accept a maximum of 30 hours of credit through examination.

Minimum Number of Credits Required Through Classroom Instruction in the Major Field and for the Degree
The University of Maryland requires a minimum of 120 semester hours of credit for an undergraduate degree; some programs require more. Regardless of the total number of transfer credits, students must complete at least their last 30 credits at the University of Maryland, College Park.

Statement on Transfer of General Education Requirements
As directed by the Maryland Higher Education Commission (MHEC) Transfer Policy, transferable courses taken in fulfillment of general education requirements at a Maryland public institution will be applied toward University of Maryland's CORE requirements. Careful planning with an academic advisor will ensure that students take appropriate credit and maximize their credit transfer. The total number of general education credits for a Maryland public institution transfer or post baccalaureate credits will not exceed that required of native students.

Transfer credit Policy - Maryland Higher Education Commission (Title 13B)
www.dsd.state.md.us/comar/subtitle_chapters/13B_Chapters.htm

RESIDENCY INFORMATION

Residency Classification Office, 1130 Mitchell Building
301-314-9596; Fax: 301-314-7915
E-mail: resclass@umd.edu
www.testudo.umd.edu/rco

Petitions, related documents and questions concerning the Board of Regents Policy on Student Classification for Admission and Tuition Purposes should be directed to the Residency Classification Office in the Office of the Registrar.
Determination of In-State Status for Admission and Tuition Purposes: See www.usmh.usmd.edu/regents/bylaws/SectionVIII/VIII270.html for the complete text of this policy.

An initial determination of in-state status will be made by the Office of Undergraduate Admissions at the time a students' application for admission is considered. The determination made at that time, and any determination made thereafter, shall prevail in each semester until the determination is successfully challenged. Students may challenge their classification by submitting a timely petition to the Residency Classification Office. Determinations are based on the residency policy and requirements. The deadline for submitting a complete petition along with all supporting documents, is the first day of the semester in which the student wishes to be classified as in-state.

The volume of requests for reclassification may necessitate a delay in completing the review process. A decision in each case will be made within 60 days of receipt of a complete petition and all required documentation. During this period of time, or any further period of time required by the university, any fees and charges based on the previous determination must be paid. The student is solely responsible for any late charges incurred by the residency process. If the determination is changed, any excess fees and charges will be refunded.

Students classified as in-state for admission and tuition purposes are responsible for notifying the Residency Classification Office in writing within 15 days of any change in their circumstances that might in any way affect their classification at the University of Maryland.

READMISSION AND REINSTATEMENT

Students who are admitted and do not register for their first semester or cancel registration prior to beginning their first semester must apply again for admission (see Freshman or Transfer Admission). Students who are admitted ae "Term Only" also must apply again for admission if they wish to register for a subsequent term.

Students who have matriculated and registered and did not maintain that registration continuously (Fall and Spring semesters) to graduation, must apply for readmission or reinstatement to re-enroll at the University of Maryland.

See "Withdrawal and Leave of Absence from the University" in chapter 4 for more detailed information.

Readmission

Students must apply for readmission if they interrupt registration for one or more semesters and were not academically dismissed at the conclusion of the last semester of attendance.

Reinstatement

Students who are academically dismissed from the university must apply for reinstatement. All applications for reinstatement are reviewed by a Faculty Petition Board. Students may apply for reinstatement for the semester immediately following dismissal or for any subsequent semester. Only the Faculty Petition Board can grant reinstatement.

Students who are denied reinstatement will be required to comply with specific recommendations made by the Faculty Petition Board in order to be considered for reinstatement in a future semester.

Reinstatement After Withdrawal

Students who withdraw from the university must apply for reinstatement if they interrupt enrollment for one or more semesters. Students who were academically dismissed at the conclusion of the previous completed semester also must apply for reinstatement (see Undergraduate Policy on Probation and Dismissal). Students should contact the Office of Undergraduate Admissions for more information about readmission and reinstatement.

Deadlines

There are no deadlines for readmission. For full consideration, students applying for reinstatement must observe the following deadlines:

Fall Semester	July 1
Winter Term	November 1
Spring Semester	December 1
Summer Session I	May 1
Summer Session II	June 1

All students are encouraged to apply early in order to take advantage of early registration.

Summer School

Students who are dismissed at the end of the fall semester are not eligible to attend Summer Sessions unless or until they are approved for reinstatement. Students dismissed at the end of a spring semester may attend any Summer Sessions prior to being reinstated. However, these students must be approved for reinstatement in order to attend during the subsequent fall semester.

Winter Term

Students dismissed at the end of the fall semester may attend Winter Term prior to being reinstated. Winter

Term is offered to students who have attended during the preceding fall semester. Students with a break in attendance must be reenrolled to be eligible to attend Winter Term. Students readmitted/reinstated for a spring semester may also attend Winter Term.

Clearances
Clearances from Judicial Programs, the Bursar, Health Center, International Education Services and/or the Graduate School may be requested of the applicant.

Applications
Applications for readmission and reinstatement may be accessed via the web at www.admissions.umd.edu/adm
www.admissions.umd.edu/admissions/apply/reenrollment.asp.

Additional Information
For additional information contact the Office of Undergraduate Admissions, ground floor, 0117 Mitchell Building, University of Maryland, College Park, MD 20742-5251, 301-314-8385 or visit: www.admissions.um
www.admissions.umd.edu.

Graduate School

Applicants who have earned or will earn a bachelor's degree at a regionally accredited college or university in the United States (or the equivalent of a baccalaureate degree in another country) are eligible to be considered for admission to the Graduate School at the University of Maryland. Graduate School and degree program criteria for admission are available in the Graduate Catalog, available online at www.gradschool.umd.edu/catalog. For more information on graduate degree programs, financial aid for graduate study, deadlines, and online application instructions, please visit the Graduate School's website, www.
www.gradschool.umd.edu, email gradschool@umd.edu, or call the Graduate School Information Center at 301-405-0376. Hard-copy correspondence can be addressed to the Graduate School, 2123 Lee Building, University of Maryland, College Park, MD 20742-5121.

2. Fees, Expenses and Financial Aid

TUITION AND BILL PAYMENT INFORMATION

Financial Services Center
1135 Lee Building, 301-314-9000 and 1-888-313-2404
www.umd.edu/bursar

Tuition and fees for the University of Maryland, College Park, are listed in the next section. The university requires that all deposits and fees be paid by stated deadlines, or penalties must be imposed. Many potential administrative difficulties can be avoided if students carefully follow published procedures and notify the appropriate office(s) of any changes that might affect their financial obligation to the university. This includes updating your email address so communication concerning your billing is prompt, and notifying the Bursar's Office of changes of address so that mail affecting the student's financial relationship with the university will not be delayed or returned.

College Park sponsors a deferred-payment plan. Information regarding the Terp payment plan is available by calling 301-314-9000 or 1-888-313-2404 or at www.umd.edu/bursar.

All charges incurred during a semester are payable immediately. Returning students will not be permitted to complete registration until all financial obligations to the university, including library fines, parking violations, and other penalty fees and service charges, are paid in full.

Payment for past due balances and current semester fees is due on or before the first day of classes. Students who register in advance must pay their bills in full prior to the general registration period. Students who register after the initial registration period are required to make full payment by the due date indicated to avoid cancellation of their enrollment and loss of their classroom seats to other students.

Although the university bills students monthly, it cannot assume responsibility for their receipt. Students are reminded that it is their responsibility to notify the University of any change in their email address. If a student bill is not received on or before the beginning of each semester, it is the student's responsibility to obtain a copy of the bill either online at www.umd.edu/bursar and choose

"Student Account Inquiry" or go to the Financial Service Center, 1135 Lee Building. The office is open Monday through Friday, 8:30 a.m. to 4:30 p.m.

All checks or money orders should be made payable to the **University of Maryland** for the exact amount due. **Student's name and student's University ID number should be written on the front side of the check**. University grants and scholarships will be posted to the student's account. However, the first bill mailed prior to the beginning of each semester may not include these deductions.

Students are urged to check their residence hall and dining service agreements for procedures for cancellation of reservations and for deadlines for receiving refunds of deposits. Refunds cannot be made after these deadlines, even if the student decides not to attend the University of Maryland, College Park.

Students will incur a late payment fee in the event of failure to pay a balance on their student account by its due date. A late payment fee of $10.00 or 5%, whichever is higher, will be assessed in addition to the total past due amount. An additional 1.5% finance charge will be charged monthly if the account is not settled.

Students who fail to pay the indebtedness during the semester in which delinquency occurs will be ineligible to advance register for subsequent semesters until the debt and the penalty fees are cleared.

In the event a student with a delinquent account becomes registered for a future semester, the account must be settled in full prior to the onset of the future semester, to avoid cancellation of registration.

The state has established, under legislative mandate, a Central Collections Unit (CCU) within the Department of Budget and Fiscal Planning. The university is required by state law to refer all delinquent accounts to the State Collections Unit. Please note that Maryland law allows the Central Collections Unit to intercept state income tax refunds for individuals with delinquent accounts, and that CCU is authorized to notify a National Credit Bureau of the delinquency at the time the account is referred to it for collection.

All accounts due from students, faculty, staff, non-students, etc., are included within these guidelines.

Central Collections Unit costs incurred in collecting delinquent accounts will be charged to the student. The minimum collection fee is 17% plus attorney and/or court costs.

No degrees, diplomas, certificates, or transcripts of records will be issued to students who have not made satisfactory settlement of their accounts.

Note: Additional Information on Student Financial Obligations, Disclosure of Information, Delinquent Accounts, and Special Fees, can be found in the "Policy Statements" section at the beginning of this catalog.

Payment of Fees

All checks, money orders, or postal notes should be made payable to the University of Maryland. The student's University ID number must be written on the front of the check. VISA, MasterCard, American Express, and Discover credit cards are accepted. Online payments can be made by clicking on the blue box atwww.umd.edu/bursar.

UNDERGRADUATE TUITION AND FEES

**An Important Fee Notice: Notwithstanding any other provision of this or any other University publication, the University reserves the right to make changes in tuition, fees, and other charges at any time deemed necessary by the University and the University System of Maryland Board of Regents. Tuition and fee information is published in the Registration Guide each semester and is also available on-line at www.umd.edu/bursar.*

2009-2010 Academic Year-Estimated*

Full-time Undergraduate Students

(For billing purposes, a student is considered full-time if the number of credit hours enrolled is 12 or more.)

Maryland Residents (In-state)

	Total Academic Year Cost
Tuition	$ 6,566
Mandatory Fees *(includes Tech fee)* *Maximum charged to all students registered for 9 or more credits*	1,487

Board *(Resident Dining Plan)*	3,826
Room *(Includes Telecom fee)*	5,549

Residents of the District of Columbia, Other States, and Other Countries

	Total Academic Year Costs
Tuition	$ 22,503
Mandatory Fees *(includes Tech fee)* *Maximum charged to all students registered for 9 or more credits*	1,487
Board Contract *(Resident Dining Plan)*	3,826
Room *(includes the Telecom fee)*	5,549

Tuition and Fees for Part-time Undergraduate Students

(For billing purposes, a student is considered part-time if the number of credit hours enrolled is 11 or fewer)

In-State Tuition *(per credit hour)*	$ 273
Out-of-State Tuition *(per credit hour)*	938
Mandatory Fees *(per semester)*	
9-11 credit hours *(per semester)*	743.50
8 or fewer credit hours *(per semester)*	338.94

EXPLANATION OF FEES

Mandatory Fees

Student Fees: The mandatory fee assessment for undergraduate students is based on a number of requested credit hours as follows: Students registered for 9 or more credits: $743.50 per semester; students registered for 8 or fewer credits: $338.94 per semester.

Student Activities Fee (Refundable): Charged to all undergraduate students at the request of the Student Government Association. It is used in sponsoring various student activities, student publications, and cultural programs.

Auxiliary Facilities Fee (Refundable): Charged to all students. This fee is paid into a fund that is used for capital improvement, expansion, and construction of various campus facilities such as open recreation areas (tennis courts, basketball courts, etc.), transportation alternatives, and the Stamp Student Union. These projects are not funded or are funded only in part from other sources.

Athletic Fee (Refundable): Charged to all students for the support of the Department of Intercollegiate Athletics. All students are encouraged to participate in all of the activities of this department or to attend the contests if they do not participate.

Shuttle Bus Fee (Refundable): Charged to all students for the support of the shuttle bus transportation system.

Stamp Student Union and Recreational Fee (Refundable): Charged to all students and is used to expand recreational facilities and Stamp Student Union services.

Recreation Services Fee (Refundable): Charged to all students specifically to support the construction and operation of Ritchie Coliseum and the Campus Recreation Center, a multi-use facility that includes basketball and racquetball courts, indoor and outdoor pools, an indoor jogging track, and multipurpose activity spaces.

Performing Arts and Cultural Center Fee: Charged to all students to support the operation of the Clarice Smith Performing Arts Center.

Telecommunications Fee: Assessed to all students living in university residence halls.

Technology Fee: Charged to undergraduate students, to support the improvement of the computer systems on campus.

Other Fees

Undergraduate Application Fee (Non-Refundable): Charged to all new applicants. $55

Enrollment Confirmation Deposit (Non-Refundable): $400. All newly admitted undergraduate students who intend to matriculate in the Fall or Spring semester must submit a $400 deposit which is credited to their tuition charges when they enroll. Should the student decide not to enroll for the specific semester of application, the $400 deposit is forfeited and cannot be used to offset any charges, including orientation charges, the student may incur.

Students admitted for the Fall semester must submit this deposit by May 1 or within 30 days from their date of admission, whichever is later, to reserve their place in the entering class. Students admitted for the Spring semester must submit this deposit by December 1 or within 14 days of their date of admission, whichever is later, to reserve their place in the entering class.

Pre-College Orientation Program Registration Fee: $145 (two-day program), $101 (one-day program), $60.00 (per person).

Late Registration Fee: $20. All students are expected to complete their registration on the regular registration days. Those who do not complete their registration during the prescribed days must pay this fee.

Special Fee for students requiring additional preparation in Mathematics (MATH 003, 010, 011, 013 and 015) per semester: $250. (Required of students whose curriculum calls for MATH 110 or 115 and who do not pass the qualifying examination for these courses.) This Special Math Fee is in addition to course charge. Students enrolled in this course and concurrently enrolled for nine or more credit hours will be considered as full-time students for purposes of assessing fees.

Cooperative Education in Liberal Arts, Business, and Science (UNIV 098-099) Per Semester: $60

Engineering COOP Program (ENCO 098-099) Per Semester: $60

Other Special Fees: The university offers a number of courses (MBA, ENTS, Chemical and Life Sciences, Animal Sciences) that have special course fees in addition to, or in lieu of, the standard tuition charges. Students are encouraged to contact the department prior to registering for the class to determine the total cost of the course.

Fees for Auditors: Fees for auditors and courses taken for audit are the same as those charged for courses taken for credit at both the undergraduate and graduate levels. Audited credit hours will be added to hours taken for credit to determine full-time or part-time status for fee assessment purposes. Special Students are assessed fees in accordance with the schedule for the comparable undergraduate or graduate classification.

Special Examination Fee (Credit-by-Exam): $30 per course for all undergraduates and full-time graduate students; credit-hour charge for part-time graduate students.

Parking Registration Fees: All students enrolled for classes at the university and who drive or park a vehicle anywhere or anytime on the campus must register to park on campus each academic year. For additional information, please refer to Department of Transportation Services.

Textbooks and Supplies: Textbooks and classroom supplies vary with the course pursued, but averaged $1025 in 2008 (two semesters).

Service Charges for Dishonored Checks: Payable for each check which is returned unpaid by the drawer bank on initial presentation because of insufficient funds, payment stopped, post-dating, drawn against uncollected items, etc.

For checks up to $100: $10

For checks from $100.01 to $500: $25

For checks over $500: $50

When a check is returned unpaid, the student must redeem the check and pay any outstanding balance in the account within 10 days or late fees may be assessed and the account transferred to the Central Collection Unit for legal follow-up. Additionally, a minimum 17% collection charge is added to the charges posted to the student's account at the time the transfer is made. When a check is returned unpaid due to an error made by the student's bank, the student must obtain a letter from the branch manager of the bank or a person of equivalent status admitting the error. This letter must be submitted to the Office of the Bursar to have the service charge waived.

Overdue Library Charges: For items from the library's main circulating collections, charges are .50 cents per day per item, and recalled item fines are $2 per day. If an item is lost or mutilated, the borrower is charged the estimated cost of the item plus a processing fee to cover acquisition and cataloging costs. Different fine rates may apply to other library collections, such as reserve collections.

Maryland English Institute Fee: Semi-intensive, $3406.00. Intensive, $5972.00. Students enrolled with the Maryland English Institute pay this fee in support of the Institute. Students enrolled in the semi-intensive program may also enroll for regular academic courses and pay the tuition and fees associated with those offerings. The program also offers non-credit courses in American English Pronunciation (UMEI 006) for $943.00 and Fluency Program or Advanced Writing (UMEI 007, 008) for $1253.00. These charges were for Fall 2008 and are subject to change.

Property Damage Charge: Students will be charged for damage to property or equipment. When responsibility for the damage can be fixed, the individual student will be billed for it; when responsibility cannot be fixed, the cost of repairing the damage or replacing equipment will be prorated among the individuals involved.

Late Payment Fee: Per-semester fee of 5% of overdue amount, or $10, whichever is greater, plus an additional 1.5% on each subsequent billing.

Withdrawal and Refund of Fees: Students compelled to leave the university at any time during the academic year should meet with their academic college advising office and secure a form for withdrawal. The completed form and identification card are to be submitted to the academic college advising office which will communicate results to the Office of the Registrar. Students will forfeit their right to a refund if the withdrawal action described above is not adhered to. The effective date used in computing refunds is the date the withdrawal form is filed in the academic college advising office. Stop payment on a check, failure to pay the semester bill, or failure to attend classes does not constitute withdrawal. Refund requests should be processed by students with the Office of the Bursar, otherwise any credit on the student account could be carried over to the next semester. **If a Cancellation of Registration is submitted to the Office of the Registrar before the official first day of classes the student is entitled to full credit of semester tuition.**

Undergraduate students withdrawing from the university will be credited for tuition and fees in accordance with the following schedule:

Prior to 1st day of classes	100%
1st 10 days of classes	80%
3rd week	60%

4th week	40%
5th week	20%
After 5th week	No refund

Note: First-semester freshmen who receive Title IV aid and who withdraw will receive a refund in accordance with federal regulations.

Prior to the first day of classes, if full-time undergraduates drop a course or courses, thereby changing the total number of credits for which they are registered to 11 or fewer, charges for the semester will be assessed on the basis of the per-credit-hour fee for part-time students. However, if students later add a course or courses thereby changing the total number of credits for which they are registered to 12 or more, they will be billed for the difference between per-credit-hour fees paid and the general fees for full-time undergraduates.

If during the first five days of classes full-time undergraduates drop a course or courses thereby changing the total number of credits for which they are registered to 11 or fewer, charges for the semester will be assessed on the basis of part-time charges plus 20% of the difference between the full-time fees and appropriate part-time charges. After the first five days of classes, there is no refund for changing from full-time to part-time status. Students who register as part-time undergraduate students and apply for a refund for courses dropped during the first week of classes will be given an 80% refund. No refund will be made for courses dropped thereafter.

No part of the charges for room and board is refundable except when students officially withdraw from the university or when they are given permission by the appropriate officials of the university to move from the residence halls and/or to discontinue dining hall privileges. In these cases, the room refund will be computed by multiplying the number of periods remaining by the pro rata weekly rate after adjusting for a service charge. Refunds to students having full board contracts will be calculated in a similar manner. No room and/or board refunds will be made after the 14th week of the semester. Students are reminded that reservations for room and board must be canceled by the date published in the residence hall and dining services agreement(s).

In computing refunds to students who have received the benefit of scholarships and loans from university funds, the computation will be made to return the maximum amount to the scholarship and loan accounts without loss to the university.

OFFICE OF STUDENT FINANCIAL AID

Student Financial Services Center
1135 Lee Building
301-314-9000; fax: 301-405-9265
umfinaid@umd.edu
www.financialaid.umd.edu

The Office of Student Financial Aid (OSFA) administers all types of federal, state, and institutional financial assistance programs, and, in cooperation with other university offices, participates in the awarding of scholarships to deserving students. The primary responsibility for financing attendance at the University of Maryland, College Park, lies with students and families. Scholarships, grants, loans, and work-study positions are awarded on the basis of academic ability and/or financial need as determined by a federal needs analysis system. It is the intent of OSFA to provide assistance to students who might not otherwise be able to pursue college studies due to financial constraints.

Financial aid funds are limited; therefore, all new, readmitted, and returning students must follow these steps to receive priority consideration for financial aid:

1. Submit admissions applications and all necessary supporting documents to the Office of Admission by the appropriate deadlines. (Deadlines are listed in chapter 1.)

2. Complete a Free Application for Federal Student Aid (FAFSA) after January 1. The FAFSA is available on the OSFA web site at www.finan www.financialaid.umd.edu. A new FAFSA is required for each academic year of the student's enrollment.

   New students should not wait to be admitted before filing the FAFSA. A financial aid application has no bearing on a student's admission application. However, students will not receive final consideration for aid until they are admitted to a degree program.

3. **Mail the FAFSA to the Federal Processor no later than**

> **February 1, so that it is received by the processor by February 15. Applying online helps to expedite the process.** Income for the previous year may be estimated initially and corrected later on the Student Aid Report.

Applications received before February 15 will be given priority consideration.

General Regulations Applicable to All Forms of Aid

Full-Time Status. For most types of aid, students must attempt at least 12 credit hours through the schedule adjustment period each semester in order to receive the full financial aid award. Please refer to the standards of Satisfactory Academic Progress when considering dropping below 12 credit hours for any given semester.

Citizenship Status. In order to be eligible for federal, state, or university financial assistance, students must be United States citizens or eligible non-citizens.

Default/Owe Refund: Students cannot be in default on an educational loan, nor can they owe any refund on a Pell Grant or Supplemental Educational Opportunity Grant (SEOG) previously awarded at any post-secondary institution.

Degree-Seeking: Students must be working toward a degree or certificate. Students must be admitted to the university as "degree-seeking."

Satisfactory Progress: Students must be making satisfactory progress toward a degree or certificate according to the Standards for Satisfactory Academic Progress published in the Schedule of Classes.

Selective Service: To receive federal financial aid, male students must register with Selective Service if they are at least 18 years old and born after December 31, 1959, unless they are not required by law. The federal government will verify compliance of this registration requirement.

Receiving a Non-University Award: If a student receives assistance (scholarship or loan) from a non-university source, the university may reduce the financial aid awarded by the university. It is the student's responsibility to notify the Office of Student Financial Aid of all outside awards.

Change in Financial Situation: It is the student's responsibility to notify the Office of Student Financial Aid of any changes to his or her financial circumstances during the year.

Reapplication Requirement: Need-based assistance is not automatically renewed from year to year. All students requesting need-based aid must reapply by submitting a new or renewal FAFSA annually. Such reapplication must indicate continued financial need and maintain Satisfactory Academic Progress (SAP).

Award Policy: Financial aid is normally a combination of grants, loans, and student employment. The financial aid "package" is determined by the availability of financial aid and the financial circumstances of each student. It is not necessary to make any special application for university grants. The Office of Student Financial Aid will determine awards that best fit the needs and qualifications of the candidates.

Estimating Educational Cost

A budget of average educational costs is used in determining the amount of aid that a student is awarded during the academic year. A typical budget for an undergraduate at the University of Maryland, College Park, is as follows:

Dependent student living on campus/off campus*

(not with parent/relative)

The 2009-2010 budget has not yet been determined, use the following 2008-2009 budget as a guideline. To determine the final budget for the 2009-2010 academic year, please contact the Financial Service Center at 301-314-9000.

Tuition and Fees	
In-State: Maryland Resident	$8,005
Out-of-State: DC, other states, other countries	23,076
Room	5,402
Board	3,707
Books	1,025
Personal expenses and commuting	3,024
Total In-State	$21,163
Total Out-of-State	$36,234

MERIT BASED FINANCIAL ASSISTANCE

1135 Lee Building
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sfa-scholarships@umd.edu
www.financialaid.umd.edu

Scholarships

Several scholarships are available to the highest-achieving students at the University of Maryland, College Park. Two types of scholarships are available: those based solely on academic or creative talent (merit-based), and those based on financial need as well as academic or creative talent (need-based). The eligibility criteria for the different scholarships vary and are listed below. For more information on these programs, students are encouraged to contact the office or department responsible for selecting the recipients. Please see the list of departmental scholarships at the end of this chapter. Current information about scholarships is also available on the Web at www.uga.umd.edu.

Banneker/Key Scholarship: The University of Maryland seeks to identify and select some of the brightest high school seniors in the nation to continue their education as Banneker/Key Scholars. There are two award levels for Banneker Key Scholarships. The first award level covers the costs of tuition, mandatory fees, room and board, and a book allowance each year for four years. The second award level provides a partial scholarship to go towards tuition and a book allowance each year for four years. Scholarship recipients will also be admitted to the University Honors Program and will be afforded many other opportunities for participation in intellectual enrichment programs. For full consideration, students must submit an admission application, application fee, official transcript, essay, recommendations, and official copies of SAT or ACT scores to the Office of Undergraduate Admissions by December 1 for the following academic year. Selection is based upon academic achievement plus extracurricular activities, awards and honors, and an essay. Semifinalists are given a personal interview. Factors such as a candidate's involvement in community service, talents or skills, leadership, and character all play a part in the final awards. Contact the Office of Undergraduate Admissions at www.uga.umd.edu for more information.

President's Scholarship: This award provides talented undergraduate students with tuition support for four years. Awards ranging from $2,000 to $12,000 per year are offered to incoming freshmen. Students are selected through the admissions process with primary consideration given to academic performance in high school (high school courses and achievement) and standardized test scores (SAT or ACT). For full consideration, students must submit a complete application for admission by December 1. Contact the Office of Undergraduate Admissions at www.uga.umd.edu for more information.

Deans' Scholarship: This award provides talented undergraduate students with tuition support for one to two years. Awards ranging from $1,500 for one year to $4,500 for two years are offered to incoming freshmen. To be considered, students must submit a complete application for admission by December 1. Contact the Office of Undergraduate Admissions at www.uga.umd.edu for more information.

President's Transfer Scholarship: This scholarship is a two-year $5,000 per tuition scholarship for transfer students. Students do not have to fill out a separate application to be considered as they will be evaluated based on their application to the University of Maryland. The scholarship will be awarded to the most competitive transfer students with the strongest academic records and college grade point averages. Students who are awarded the scholarship will receive notification by mail about two weeks after they receive their letter of admission. Contact the Office of Undergraduate Admissions at www.uga.umd.edu for more information.

Regents Scholars Program: The Regents Scholars Program recognizes the extraordinary achievement of outstanding freshmen students. New awards are made each year in the amount of full in-state tuition, room, board, and mandatory fees. Recipients are automatically admitted to the University Honors Program. A select number of the top high school scholars in the state will be considered for this most prestigious award. A complete admission application, application fee, official transcript, essay, recommendations, and SAT or ACT scores must be submitted to the Office of Undergraduate Admissions by December 1 for consideration for the Regents Scholars Program for the following academic year. Contact the Office of Undergraduate Admissions for more information.

National Merit Scholarship/College-Sponsored Merit Award: The National Merit Scholarship Corporation (NMSC) has a variety of scholarships that are awarded to students based on academic performance. The University of

Maryland serves as a sponsoring institution for students selected by NMSC to receive the College-Sponsored Merit Scholarship award. Students selected for the UM Sponsored Merit award will receive a four-year renewable scholarship ranging from $1,000 - $2,000/year. All finalists should follow NMSC's instructions for first choice notifications carefully and observe deadlines to remain eligible for awards.

The National Merit Scholarship also awards Corporate-Sponsored merit scholarships and National Achievement awards. For more information on the National Merit Scholarship program please visit: www.nationalmerit.org.

Weinberg Regents Scholarship: The Board of Regents has designated the Weinberg Regents Scholarship to be awarded to a Maryland community college transfer student in order to continue the commitment to outstanding students. In order to be selected for this award, a student must have exceptional qualifications, including achievement of a 4.0 grade point average, completion of the Associate of Arts degree at a Maryland community college, evidence of creative and intellectual activities or scholarly potential, and have been admitted to one of the University System of Maryland institutions. The deadline for submitting the candidate's application material is June 15. The winner may receive the scholarship for two years, totaling no more than four semesters including Summer sessions. For information, contact the University System of Maryland Administration at 301-445-1992.

Transfer Academic Excellence Scholarship: These awards are available to outstanding students transferring from Maryland community colleges. The awards cover in-state tuition and mandatory fees for two years of undergraduate study. To be eligible for consideration, students must have an overall grade point average of 3.5 for all college work attempted, and must have completed an Associate of Arts degree or the entire first two years of courses for the major in which the student expects to enroll. Students who have previously attended the University of Maryland, College Park, are ineligible for this scholarship. Candidate nomination forms are available in early January from the Office of Undergraduate Admissions or from community college advisors. The deadline for receipt of the application, official transcripts, and scholarship materials is mid-March. Contact the Office of Undergraduate Admissions.

Honors Scholarship: Honors students already attending Maryland are eligible to apply for one of these $500 awards. To be considered, students must be first- or second-year students, have at least a 3.2 grade point average, and be making satisfactory progress toward the completion of requirements for an Honors citation. To apply applicants must submit an essay on their academic goals and plans for achieving them. Please note that financial need taken into consideration when awarding funds. In addition, Regents, Banneker-Key, and President's Scholarship recipients are not eligible for the Honors Scholarships and. For more information please contact the University Honors Program.

University of Maryland Departmental Scholarships: Some Colleges and departments at the university offer a variety of merit scholarships. Most departmental scholarships require a student to have a minimum grade point average of 3.0 and be registered for a minimum of 12 credits per semester. For information regarding departmental scholarships, please contact the appropriate College or department.

Creative and Performing Arts Scholarships: These are competitive scholarships which are awarded annually. Primary consideration will be given to entering freshmen and transfer students from community colleges who have outstanding talent in art, dance, music, or theater. The scholarships cover in-state tuition and mandatory fees and are renewable for up to three additional years based upon an acceptable level of performance as defined by the respective departments. Auditions and/or portfolios are required. Contact the College of Arts and Humanities.

Maryland State Scholarships: The Maryland State Scholarship Administration (MSSA), located in Annapolis, awards both need- and merit-based scholarships to Maryland residents. There are currently 16 different programs available, including the Guaranteed Access Grant, Educational Assistance Grant, the Senatorial Scholarship, the House of Delegates Scholarship, and the Distinguished Scholar Award. You may obtain more information about these and other awards by calling MSSA at 800-974-1024. All Maryland residents are expected to apply for State Scholarship assistance. Initial application for many of the awards is made through the Free Application for Federal Student Aid (FAFSA). Please note that filing the FAFSA is sufficient to apply for most Maryland State Scholarships at UMCP, although some may require additional application forms. The application deadline for most programs is March 1. The FAFSA is available on the OSFA web site atwww.financialaid.umd.edu.

Scholarships from Other States: Several states have reciprocal agreements with the State of Maryland. Students who are residents of these states may receive funds for study in eligible post-secondary institutions in Maryland. Interested students should contact their state scholarship agencies for information.

Scholarship Searches: A broad range of scholarships are available from private sources. Usually, these awards are not as well publicized as the state and university programs. Therefore, students should conduct a scholarship search to locate such sources. The University of Maryland offers access to several services to students to aid them in their searches. Access our Web site at www.financialaid.umd.edu to use these services.

NEED-BASED FINANCIAL ASSISTANCE

1135 Lee Building
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Grants

The Office of Student Financial Aid administers several grant programs for undergraduates. Awards are made based on financial need as determined by the FAFSA. Grants do not have to be repaid. Access our web site at www.financialaid.u
www.financialaid.umd.edu for more information.

Federal Pell Grant: This grant provides a "foundation" of financial aid, to which aid from other sources may be added. Only undergraduates who are seeking their first bachelor's degree and have exceptional need may receive a Federal Pell Grant. All undergraduates will be considered for this grant regardless of when their applications were received. Students may receive the Federal Pell Grant for less than full-time attendance, although the award will be pro-rated based on the number of credits attempted. Awards range from $775 to $5,350.

Federal Supplemental Educational Opportunity Grant (FSEOG): The FSEOG is awarded to full-time undergraduates with exceptional need. Priority is given to Federal Pell Grant recipients. To be considered for FSEOG, students must meet OSFA's priority application deadline of February 15. The minimum award is $200. The maximum award is dependent upon government funding. The funds are divided among as many deserving students as possible.

Academic Competitiveness Grants (ACG) and National Science and Mathematics Access to Retain to Retain Talent (SMART) Grants: Academic Competitiveness Grant, Section 401A of the "Higher Education Reconciliation Act of 2005" establishes a grant program for students who have concentrated in math/science or a foreign language critical to U.S. Security.

Grants for first or second year undergraduate students are called "Academic Competitiveness Grants (ACG)." Grants for third or fourth year undergraduate students are called "National Science and Mathematics Access to Retain Talent (SMART) Grants."

Students who are eligible for the ACG grants must be a U.S. citizen, enrolled full-time in an undergraduate program, must have completed a "rigorous high school program", file the Free Application for Federal Student Aid (FAFSA) and eligible for the federal Pell grant. The ACG grant amount is up to $750 for first year students and $1300 for second year students over two semesters.

Students who are eligible for the SMART grants must be a U.S. citizen, enrolled full-time in an approved undergraduate program, must have a 3.0 GPA, file the Free Application for Federal Student Aid (FAFSA) and eligible for the federal Pell grant. The SMART grant amount is up to $4000 over two semesters.

Teacher Education Assistance for College and Higher Education (TEACH) Grant

Through the College Cost Reduction and Access Act of 2007, Congress created the Teacher Education Assistance for College and Higher Education (TEACH) Grant Program that provides grants of up to $4,000 per year to students who intend to teach in a public or private elementary or secondary school that serves students from low-income families.

To receive the TEACH Grant students must complete the FAFSA, be a U.S. citizen or eligible non-citizen, enrolled as an undergraduate, post-baccalaureate or graduate student, enrolled in a coursework necessary to begin a career in teaching or plan to complete such coursework, maintain a cumulative 3.25 GPA and sign a TEACH Grant Agreement to Serve. Questions regarding the TEACH Grant Program can be directed to the Office of Student Financial Aid.

Institutional Grants: The university awards grants to full-time students who demonstrate financial need and meet OSFA's priority application deadline of February 15. There are three funds from which institutional grants are awarded, the UM Scholarship, Frederick Douglass Grant and the UM Grant. OSFA selects the recipients of these awards based on availability of funds and the qualifications of the applicants. The UM Scholarship may be awarded to undergraduates with demonstrated need and high academic achievement. The UM Grant and Frederick Douglas Grant may be awarded to any undergraduate with demonstrated need. Award amounts for these programs range from $500 to $3,900.

Self-Help

Financial aid also consists of self-help assistance such as employment and student loan programs. Most of these programs are awarded based on need as determined by the FAFSA. Access our web site at www.financialaid.umd.edu for additional information.

Federal Work-Study: The Federal Work-Study (FWS) Program provides students with the opportunity to earn money to meet their educational and personal expenses. Money earned from the FWS program does not have to be paid back. To be considered for FWS, students must meet OSFA's priority application deadline of February 15. This award is need-based and may range from $800 to $2,200. Pay rates depend on the level of complexity of the work, but will be at least the federal minimum wage. Like all university employees, FWS employees receive a paycheck every other week for the hours worked. Most FWS jobs are on campus, though opportunities exist through the Community Service Program for FWS students to work off campus at several Federal Government Agencies. The number of hours students may work is limited to 20 per week while school is in session and 40 per week during vacations and summer break.

Paid Internships: Students with paid internships sign a contract at the beginning of the semester that states the payment amount for the number of hours to be worked during that semester. The payment amount is advanced to the student's account at the start of each semester. This program differs from Federal Work-Study in that students receive all "wages" at the start of each semester, as opposed to a bi-weekly pay check, and those funds are applied directly to the student's account. Several offices and departments on campus, including Shuttle UM, Residential Facilities, and Dining Services, offer paid internships. Students should contact the department or office for which they are interested in working.

Federal Perkins Loan: The Perkins loan is a low-interest rate (5%) loan for students with exceptional financial need. This is a loan borrowed from the school, and must be repaid. To be eligible, students must meet OSFA's priority application deadline of February 15. The amount of the award will depend upon the student's need and may range from $200 to $2,000. New borrowers (those who first receive a Federal Perkins Loan after July 1, 1988) have a grace period of nine months after graduating or leaving school before they must begin repayment of their Federal Perkins Loan(s). Interest will begin accruing at the time of repayment. This loan is interest-free while students are attending school and enrolled at least half time in a degree-seeking program.

Federal Stafford Loan: This is a low-interest-rate loan for students who attend at least half-time. Application is made through the school's financial aid office via the FAFSA. Eligibility for this loan is based on need, not credit worthiness. This loan is borrowed by the student and must be repaid.

There are two types of Federal Stafford Loans, subsidized and unsubsidized. The subsidized Stafford loan is awarded to students with demonstrated financial need; this loan is interest-free while students are attending school and enrolled at least half-time in a degree-seeking program. Students who do not demonstrate financial need, or who do not demonstrate sufficient need to borrow a fully subsidized Stafford loan, may borrow a Federal Unsubsidized Stafford Loan. The unsubsidized loan is interest bearing. Students borrowing an unsubsidized Stafford loan will be required to repay the principle and any interest that may accrue during school attendance. All students who wish to apply for either Federal Stafford Loan must complete the FAFSA. As of July 1, 2009 the subsidized loan interest rate will be fixed at 5.6%. The unsubsidized loan interest will be fixed at 6.8%. Students who graduate or drop below half-time status are granted a six-month grace period before repayment of the Stafford loan is required.

The following are the maximum loan amounts per academic year: $5,500 for undergraduates with freshman status, $6,500 for undergraduates attaining sophomore status, and $7,500 for undergraduate students who attain junior or senior status. If students do not demonstrate sufficient need to borrow the maximum subsidized Federal Stafford Loan, they may borrow the difference in a Federal Unsubsidized Stafford Loan. The maximum borrowing limit for most undergraduates is $31,000.

Federal PLUS (Parent Loans For Undergraduate Students): This is a non-need-based loan, which parents may borrow to help defray the cost of their dependent children's education. The Federal PLUS enables parents to borrow the full yearly cost of attendance (as determined by the school) minus all other financial aid. Otherwise, there is no yearly or cumulative borrowing limit. Because this loan is not need-based, submission of the FAFSA is not required to apply. However, borrowers must first submit the PLUS loan application to the school for calculation and certification of the maximum loan amount that the parent may borrow per student per year. The Federal PLUS is granted to borrowers based on credit-worthiness as determined by the lender whom the borrower selects. The interest rate for the Federal PLUS is fixed at 8.5%. The borrower has the option of beginning repayment on the PLUS loan either 60 days after the loan is fully disbursed or not until six (6) months after the dependent student on whose behalf the parent borrowed ceases to be enrolled on at least a half-time basis.

COLLEGE AND DEPARTMENTAL SCHOLARSHIPS

1135 Lee Building
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sfa-scholarships@umd.edu
www.financialaid.umd.edu

Some UM colleges and departments offer merit-based scholarships. Most departments will only consider students who enroll for 12 credits per semester, and who have a grade point average of at least 3.0. Some of these scholarships are open to prospective freshman and transfer students. Some of them are only open to continuing UM students. For additional information regarding departmental scholarships please contact the appropriate college or department or visit www.financialaid.umd.edu/Scholarhips/departmental.html.

COLLEGE OF AGRICULTURE AND NATURAL RESOURCES

Agricultural & Resource Economics

Animal and Avian Sciences

Biological Resources Engineering

Environmental Sciences

Institute of Applied Agriculture

Natural Resource Sciences

Natural Resources Management Program

Nutrition & Food Science

Plant Science and Landscape Architecture

Veterinary Medicine

COLLEGE OF ARTS AND HUMANITIES

American Studies

Art

Art History & Archaeology

Asian & East European Languages and Cultures

Classics

Communication

Comparative Literature

Dance

English Language and Literature

French & Italian Languages and Literatures

Germanic Studies

History

Jewish Studies Program

Linguistics

Music

Philosophy

Spanish & Portuguese Languages and Literatures

Theatre

Women's Studies

COLLEGE OF BEHAVIORAL AND SOCIAL SCIENCES

African American Studies

Anthropology

Criminology & Criminal Justice

Economics

Geography

Government and Politics

Hearing and Speech Sciences

Joint Program in Survey Methodology

Psychology

Study of Terrorism and Responses to Terrorism

COLLEGE OF COMPUTER, MATHEMATICAL, AND PHYSICAL SCIENCES

Applied Mathematics

Astronomy

Computer Science

Geology

Mathematics

Meteorology

Physics

Statistics Program

COLLEGE OF EDUCATION

Counseling & Personnel Services

Curriculum & Instruction

Education Policy, Planning, and Administration

Human Development (Institute for Child Study)

Measurement, Statistics & Evaluation

Special Education

COLLEGE OF HEALTH AND HUMAN PERFORMANCE

Family Studies
Health Education
Kinesiology

PUBLIC AND COMMUNITY HEALTH

COLLEGE OF JOURNALISM

COLLEGE OF LIBRARY AND INFORMATION SERVICES

COLLEGE OF CHEMICAL AND LIFE SCIENCES

Biology
Cell Biology & Molecular Genetics
Chemistry & Biochemistry
Entomology
Environmental Sciences
Marine-Estuarine Environmental Sciences

A. JAMES CLARK SCHOOL OF ENGINEERING

Aerospace Engineering
Chemical Engineering
Civil and Environmental Engineering
Electrical and Computer Engineering
Fire Protection Engineering
Hillman Entrepreneurship Program
Materials and Nuclear Engineering
Mechanical Engineering

Reliability Engineering

ROBERT H. SMITH SCHOOL OF BUSINESS

Accounting

Business

Decision and Information Technologies

Finance

Hinman Entrepreneurship

Logistics, Business and Public Policy

Management and Organization

Marketing

Quest Program

SCHOOL OF ARCHITECTURE, PLANNING and PRESERVATION

Architecture

Urban Studies and Planning Program

School of Public Policy

Environmental Policy Program

James MacGregor Burns Academy of Leadership

Public Policy

Public Sector Financial Management

Social Policy

Interdepartmental Programs

Chemical Physics Program

Environmental Science and Policy (BSOS)

Systems Engineering

RETURNING STUDENTS PROGRAM/COUNSELING CENTER

Irwin S. Kamin Adult Learner Emergency Fund

Charlotte W. Newcombe Scholarship

Gerald G. Portney Memorial Scholarship

Returning Students Program

Women's Forum Scholarship

UNDERGRADUATE STUDIES

Academic Achievement Programs

Air Force Aerospace studies Program

Army ROTC

College Park Scholars Program

Individual Studies Program

Lesbian, Gay, Bisexual and Transgender Equity

Letters and Sciences

National Scholarships Office

University Honors Program

UNIVERSITY RELATIONS

Alumni Association

3. Campus Administration, Resources, and Student Services

CAMPUS ADMINISTRATION

Office of the President

1101 Main Administration Building
301-405-5803
C. Daniel Mote, Jr., President
www.umd.edu/PRES

The president is the chief executive officer of the University of Maryland. Six vice presidents, who report to the president, manage different divisions of the campus administration. The Office of Human Relations Programs, the Department of Intercollegiate Athletics, and the Maryland Fire and Rescue Institute report to the Office of the President. The University Senate, a representative legislative body of the university, advises the president on academic and other matters.

Academic Affairs

1119 Main Administration Building
301-405-5252
Nariman Farvardin, Senior Vice President and Provost
www.provost.umd.edu

The Senior Vice President for Academic Affairs and Provost is the chief academic officer of the university with responsibility for guiding the academic development and direction of the institution in accordance with the university's mission; ensuring that our programs and faculty are of the highest caliber; supporting the diversity of our students, faculty, and staff as a special strength; and promoting academic excellence across the university. The deans of the 13 colleges and schools at the University report directly to him as do the deans for undergraduate studies, the graduate school, and professional studies, the dean of the libraries and the chief information officer. The senior vice president and provost oversees the development, review, and implementation of all academic policies and regulations; consults closely with the University Senate and other faculty advisory groups on academic programs and policies; and serves as liaison with other university divisions in strategic and long-range planning.

Administrative Affairs

1132 Main Administration Building
301-405-1105
Ann G. Wylie, Vice President
www.adminaffairs.umd.edu

The Office of the Vice President for Administrative Affairs is responsible for the effective management of the physical, fiscal, and staff support resources of the institution. The office also provides campus safety and security, environmental health and safety, materials management, and other necessary support services. Of particular interest to students are the community awareness and security programs offered by the Department of Public Safety, the information and assistance services provided by the Bursar for concerns of students regarding university billings, and the campus' efforts related to sustainability.

Student Affairs

2108 Mitchell Building
301-314-8428
Linda Clement, Vice President
www.studentaffairs.umd.edu

The Office of the Vice President for Student Affairs provides administrative leadership for 15 departments which oversee student life. The office serves as a general point of contact for students and their families regarding housing, dining, transportation, recreation, wellness and non-academic student services. The office maintains liaison with the university chaplains, the Student Government Association (SGA), and the Graduate Student Government (GSG). In addition, it provides administrative support for the Senior Council, Parents and Family Affairs, and Student Affairs Development.

Office of Human Relations Programs

1130 Shriver Laboratory, East Wing
301-405-2838
www.umd.edu/OHRP

The Office of Human Relations Programs (OHRP) advises and assists the President in the promotion of the university mission as it relates to multiculturalism, broadly conceptualized (i.e., race (inclusive of color and creed); ethnicity; language; national or geographic origin; socioeconomic class (inclusive of educational level, employment status, and familial configuration); sex and gender; gender identity and expression; sexual orientation; physical, developmental, and psychological ability; religious, spiritual, faith-based, or secular affiliation; age and generation; physical appearance, environmental concern; and, on the basis of the exercise of rights secured by the First Amendment). More specifically, we facilitate partnership building between various constituencies of students, faculty, and staff on these issues as they impact schooling and are oriented toward the realization of an inclusive and therefore affirming environment for every citizen of the university community.

The Office of Human Relations Programs (OHRP) is responsible for initiating action in compliance with institutional, state, and federal directives to provide equal education and employment opportunities for university students, faculty, and staff members. We also monitor the outcomes of actions taken in this regard, reporting our findings to the President, the Campus Senate, and to the campus community at large. We provide students, faculty, and staff with general information on equity efforts and on the status of equity and compliance matters at the university. Students, faculty, or staff having a concern about possible inequities in educational or employment matters, or who wish to register a complaint, may contact either the Campus Compliance Officer at 301-405-2839, or a member of the Campus' Equity Council (see Equity Council in chapter 3).

The Office of Human Relations Programs (OHRP) sponsors initiatives that promote intergroup relationship building, sexual harassment and hate crimes prevention, multicultural organizational development, and processes complaints of discrimination following procedures set forth in the University's Human Relations Code (the complete text of this Code may be found in chapter 10).

The efforts of the OHRP are directed toward the development of our students, faculty, and staff becoming principled leaders, predisposed to progressive action; becoming democratic citizens as outstanding in what they do as in who they are with respect to their commitment to furthering the tenets of equity and justice for all.

Equity Council

1119 Main Administration Building
301-405-5793
www.president.umd.edu/EqCo

The Equity Council serves as an advisory group to the President and supports the longstanding and continuous goal of the University of Maryland to be a national leader in recruiting and retaining a diverse community of faculty, staff and students. The Council provides leadership in the articulation and development of affirmative action policies and procedures for the campus community. A particular focus of the Equity Council is to review and recommend, as appropriate, search and selection policies and procedures for the university and its colleges and departments. The Council consists of equity administrators from each Vice President and Dean's office and the Office of the President. The Special Assistant to the President for Equity Diversity serves as Chair of the Council.

Dr. Robert E.Waters, Jr., Chair
Office of the Senior Vice President for Academic Affairs and Provost
301-405-5793
1119 Main Administration Building
rewaters@umd.edu

Dr. Brooke Supple, Division of Student Affairs
301-314-8437
2108M Mitchell Building
bsupple@umd.edu

Dr. Warren Kelley (Interim), Division of Student Affairs
301-314-8436
2108G Mitchell Building
wkelley@umd.edu

Dr. Viki Annand, School of Public Health
301-405-2473
2302 Health and Human Performance Building
vannand@umail.umd.edu

Ms. Carolyn Trimble, University Human Resources
301-405-5648
3100 Chesapeake Building
ctrimble@umd.edu

Dr. Dianne Barlow, College of Information Studies
301-405-2042
4105 Hornbake Library
dbarlow@umd.edu

Dr. Cordell W. Black, Division of Academic Affairs
301-405-6810
1127 Main Administration
cblack@umd.edu

Mr. Paul Brown, Maryland Fire and Rescue Institute
4500 Paint Branch Parkway
301-226-9963
skypaul@umd.edu

Ms. LaVern Chapman, Robert H. Smith School of Business
301-405-1951
4570 Van Munching Hall
lchapman@rhsmith.umd.edu

Ms. Vicki Kesler, Robert H. Smith School of Business
301-405-2308
2570D Van Munching Hall
vkesler@umd.edu

Ms. Roberta H. Coates, Office of the President
Staff Ombuds Office
301-405-5795
1112 Cole Student Activities Building
rcoates@umd.edu

Ms. Barbara Duncan, College of Agriculture and Natural Resources
301-405-0044
1122 Symons Hall
bduncan@umd.edu

Ms. Ingrid Farrell, School of Architecture, Planning and Preservation
301-405-6310
1200 Architecture Building
ifarrell@umd.edu

Dr. Kim Nickerson, College of Behavioral and Social Sciences
301-405-7599
2141 Tydings Hall
knickerson@bsos.umd.edu

Ms. Lee Ellen Harper, Office of Professional Studies
301-405-2224
2103 Reckord Armory

lharper@umd.edu

Mr. Gene Ferrick, College of Chemical & Life Sciences
301-405-7016
2300G Symons Hall
gene@umd.edu

Ms. Wendy A. Jacobs, College of Arts and Humanities
301-405-2345
1102 Francis Scott Key Hall
wajacobs@umd.edu

Dr. Stephen Koziol, College of Education
301-405-3324
2311 Benjamin Building
skoziol@umd.edu

Dr. Margaret McLaughlin, College of Education
301-405-6495
1308 Benjamin Building
mjm@umd.edu

Dr. Ronald Lipsman, College of Computer, Mathematical and Physical Sciences
301-405-2313
3417 A.V. Williams Building
rlipsman@umd.edu

Mr. Dean Kitchen, College of Computer, Mathematical and Physical Sciences
301-405-2314
3421 A.V. Williams Building
dkitchen@umd.edu

Ms. Johnnieque Love, University Libraries
301-405-9048
7233 McKeldin Library
jlove1@umd.edu .

Mr. James Newton, Office of Undergraduate Studies
301-405-6851
2130K Mitchell Building
jnewton@umd.edu

Dr. Gary Pertmer, A. James Clark School of Engineering
301-405-3936
1124 Martin Hall
pertmer@umd.edu

Mr. William L. Powers, School of Public Policy
301-405-6336
2101E Van Munching Hall

wpowers@umd.edu

Ms. Olive Reid, Philip Merrill College of Journalism
301-405-2433
1117 Journalism Building
oreid@umd.edu

Ms. Cynthia Trombly, University Relations
301-405-2532
3144 Riggs Alumni Center
ctrombly@umd.edu

Mr. Kyland Howard
Office of Institutional Research, Planning & Assessment
301-405-5593
1100 Mitchell Building
khoward@umd.edu

Office of Diversity and Inclusion

1130 Shriver Laboratory, East Wing
301-405-2838
www.odi.umd.edu

The Office of Diversity & Inclusion (ODI) advises and assists the President in the promotion of the university mission as it relates to multiculturalism, broadly conceptualized (i.e., race (inclusive of color and creed); ethnicity; language; national or geographic origin; socioeconomic class (inclusive of educational level, employment status, and familial configuration); sex and gender; gender identity and expression; sexual orientation; physical, developmental, and psychological ability; religious, spiritual, faith-based, or secular affiliation; age and generation; physical appearance, environmental concern; and, on the basis of the exercise of rights secured by the First Amendment). More specifically, we facilitate partnership building between various constituencies of students, faculty, and staff on these issues as they impact schooling and are oriented toward the realization of an inclusive and therefore affirming environment for every citizen of the university community.

The Office of Diversity & Inclusion (ODI) is responsible for initiating action in compliance with institutional, state, and federal directives to provide equal education and employment opportunities for university students, faculty, and staff members. We also monitor the outcomes of actions taken in this regard, reporting our findings to the President, the Campus Senate, and to the campus community at large. We provide students, faculty, and staff with general information on equity efforts and on the status of equity and compliance matters at the university. Students, faculty, or staff having a concern about possible inequities in educational or employment matters, or who wish to register a complaint, may contact either the Campus Compliance Officer at 301-405-2839, or a member of the Campus' Equity Council (see Equity Council in chapter 3).

Office of Undergraduate Studies

2130 Mitchell Building
301-405-9363
www.ugst.umd.edu

Associate Provost and Dean: Donna B. Hamilton
Associate Dean: Katherine McAdams
Assistant Deans: Deborah Reid Bryant, Lisa Kiely, James Newton
Assistants to the Dean: Kathryn Robinson, Laura Slavin

Through its many programs, the Office of Undergraduate Studies serves all undergraduate students at the University and the faculty and staff that support the undergraduate mission of the campus. The Office of Undergraduate Studies is the primary division at the University of Maryland responsible for leadership and oversight of undergraduate curricular and co-curricular education.

University Relations

2119 Main Administration Building
301-405-4680
Brodie Remington, Vice President
www.urhome.umd.edu

The Division of University Relations conducts a variety of programs to share news, build ties, and raise philanthropic support for the University of Maryland. Units of this division include Development, Marketing and Communications, University of Maryland College Park Foundation Administration, Special Events, and Alumni Relations. University Relations is responsible for campus-wide programs in fund-raising, alumni affairs, publications, film and video presentations, media relations, and management of major campus events. The *Great Expectations* fund raising campaign to raise $1 billion in private support for university priorities such as scholarships and facilities, is coordinated by University Relations.

University Senate

1100 Marie Mount Hall
301-405-5805
www.senate.umd.edu

The University Senate, an integral part of the institution's system of shared governance, has representation from all segments of the campus community: faculty, staff, undergraduate students, and graduate students. Participation in the Senate or any of its 15 Standing Committees is an honor and a responsibility.

The full Senate meets approximately nine times a year to consider matters of concern to the institution, including academic issues, university policies, plans of organization, facilities, and the welfare of faculty, staff, and students. The Senate advises the president, the chancellor, or the Board of Regents as appropriate. To become a student senator, students must be elected by students in their college or school or the Office of Undergraduate Studies in centralized, online elections. Elections are held every year during the spring semester. Students are also encouraged to participate in Senate Standing Committees, such as Student Affairs and Human Relations. These committees draw membership from the campus community at large and cover every aspect of campus life and function. Details about the election and appointment process are available from the University Senate Office.

ACADEMIC RESOURCES AND SERVICES

Academic Achievement Programs

2110 Marie Mount Hall
301-405-4736
Executive Director: Dr. Jerry L. Lewis
www.aap.umd.edu

The Academic Achievement Programs (AAP) primarily provides resources and opportunities for low-income individuals, first generation college students, disabled students and traditionally under-represented students.

For more information, see Office of Undergraduate Studies section in Chapter 6.

Admissions

301-314-8385
um-admit@umd.edu
www.admissions.umd.edu

The services offered by the Office of Undergraduate Admissions are designed to meet the individual needs of prospective students. The office provides general information about the University of Maryland through brochures, letters, information sessions, and campus tours. Admissions staff evaluate the applications of both freshman and transfer students in order to select qualified students. Undergraduate Admissions also reviews all applications for readmission and reinstatement. For more information about undergraduate admissions, see chapter 1.

America Reads*America Counts

0144 Holzapfel Hall
301-314-READ
www.arac.umd.edu

Do you like working with kids? America Reads*America Counts (ARAC), part of Community Service-Learning, is a partnership between the University of Maryland and Prince George's County Public Schools. ARAC strives to provide high quality mentoring in local schools that enriches learning opportunities for both college and elementary school students. Federal Work Study mentor positions (starting at $10/hour), Volunteer, Intern, and Academic Credit opportunities are all available. Mentors are matched with children in a Prince George's County elementary schools and tutor 3-10 hours per week for a semester or more. Mentors receive excellent training in tutoring, leadership and community service-learning and have the opportunity to connect with other students who share their interests. Contact the ARAC office for more information or to learn whether you are eligible for federal work-study. APPLY TODAY at www.arac.umd.edu.

Computing Services: Office of Information Technology

Phone: 301-405-7700
Fax: 301-405-0300
oit@umd.edu
www.oit.umd.edu

The Office of Information Technology (OIT) is part of a University of Maryland student's everyday academic and social life. OIT plans, develops, supports, and maintains computing, networking, and telecommunications services for the university community to enhance both day-to-day academic and business goals and to further the university's standard of excellence in education and research.

Many faculty members have integrated technology into courses, both inside and outside of the classroom. Some professors use clickers to collect student feedback during class. Through ELMS (the university's Enterprise Learning Management System, powered by Blackboard Academic Suite) (www.elms.umd.edu), instructors can provide online course materials, collect assignments, and post grades electronically, and hold discussion sessions. The university's robust wireless network (one of the nation's largest for a university our size) gives students the ability to connect to the Internet from almost anywhere on campus. Computer labs across campus feature Windows and Macintosh environments and provide printing services and course-related software.

The MyUM portal (www.my.umd.edu) gives students a one-stop gateway to numerous university resources, including e-mail, a personal calendar, and customizable RSS feeds, as well as everything offered through Testudo (www.testudo.umd.edu), which allows you to register for classes online, see your financial aid status, check your grades, and more.

The OIT Student Help Desk (www.helpdesk.umd.edu, 301.405.1400) provides answers to your IT questions and offers technical assistance. Discounts on computers, printers, software programs, and cellular devices and service are also available to University of Maryland students. Visit the Academic Computers for Terps (ACT) Web site (www.act.umd.edu) or the Terrapin Technology Store (www.oit.umd.edu/techstore, 301.314.7000) for more information.

Educational Talent Search

3103 Turner Hall
301-324-7763
www.etsp.umd.edu

Educational Talent Search increases the college participation of low-income and first-generation college students.

For more information, see Office of Undergraduate Studies section in Chapter 6.

Office of Extended Studies

0132 Main Administration Building
301-405-7762

Chuck Wilson, Assistant Vice President for Extended Studies
oes.umd.edu

The Office of Extended Studies administers the University's Summer Term, Freshmen First, Young Scholars Program, Freshmen Connection Program, Winter Term, and Professional Programs.

Summer Term offers over 1,700 undergraduate and graduate courses and non-credit workshops that are open to current Maryland students, visiting students from other colleges, graduates, professionals, high school students, and more. Classes are offered morning, afternoon, evening, and online during two 6-week sessions or four 3-week sessions. In the *Young Scholars Program,* academically qualified high school juniors and seniors pursue academic interests, discover career opportunities, and learn about university life. *Freshmen First* provides fall and spring newly admitted Maryland freshmen an opportunity to transition into while earning academic credit.

The Freshmen Connection Program is a fall semester academic program specifically designed for students who confirm spring admission to the University of Maryland. Students who enroll in this extension program earn up to 16 credits toward their undergraduate degree.

Winter Term is a three-week session in January offering more than 200 undergraduate and graduate courses as well as noncredit workshops. Winter Term provides an opportunity for students to accelerate their progress toward graduation, fulfill prerequisites, and meet eligibility requirements for certain majors.

Professional Programs provides lifelong learning opportunities for working professionals at the Univ
University of Maryland. Professional master degrees and graduate certificates are offered in either the traditional face-to-face classroom environment or through the flexible online learning format. Professional Programs also include post-baccalaureate opportunities that assist in preparation for professional schools, graduate programs, and professional achievement as well as customized programs that include seminars, work force training, or short courses crafted for industry application.

Student Financial Services Center

1135 Lee Building
301-314-9000
umfinaid@umd.edu
www.financialaid.umd.edu

The Office of Student Financial Aid (OSFA) administers a variety of financial assistance and student employee programs. Assistance is granted primarily on the basis of the applicant's financial need as determined by the Free Application for Federal Student Aid (FAFSA). The OSFA staff is available for individual counseling on matters pertaining to financing a college education. For additional information, see section entitled Fees, Expenses, and Financial Aid.

Honor Societies

www.union.umd.edu/studentorg/

Students who excel in scholarship and leadership may be invited to join the appropriate honor society. Honor societies at Maryland include:

Alpha Chi Sigma (Chemistry)
*Alpha Epsilon (Agricultural Engineering)
*Alpha Epsilon Delta (Pre-Med)
Alpha Epsilon Rho (Broadcast Journalism)
*Alpha Kappa Delta (Sociology)
*Alpha Lambda Delta (Freshman Scholarship)
Alpha Phi Sigma (Criminal Justice)
Alpha Zeta (Agriculture)
Beta Alpha Psi (Accounting)
Beta Gamma Sigma (Business Management)
Black Honors Caucus
*Chi Epsilon (Civil Engineering)
Delta Nu Alpha (Transportation)
Delta Phi Alpha (German)
Delta Sigma Pi (Business)
Eta Beta Rho (Hebrew)
*Eta Kappa Nu (Electrical Engineering)
*Gamma Theta Upsilon (Geography)
*Golden Key Honor Society (Leadership/Scholarship)
*Kappa Delta Pi (Education)
*Kappa Tau Alpha (Journalism)
*Lambda Pi Eta (Speech Communication)
*Mortar Board National Honor Society (Scholarship)
*National Society of Collegiate Scholars
*Omega Chi Epsilon (Chemistry Engineering)
*Omega Rho (Business)
*Omicron Delta Epsilon (Economics)
*Omicron Delta Kappa (Scholarship/Leadership)
*Order of Omega (Fraternity/Sorority Leadership)
Phi Alpha Epsilon (Health/Human Resources)
*Phi Alpha Theta (History)
Phi Beta Kappa (Scholarship)
Phi Chi Theta (Business and Economics)
*Phi Eta Sigma (Freshman Scholarship)
*Phi Kappa Phi (Senior/Graduate Scholarship)
*Phi Sigma (Biology)
*Phi Sigma Pi (Scholarship/Leadership)
*Phi Sigma Iota (French/Italian)
*Pi Sigma Alpha (Political Science)
*Phi Sigma Theta
Pi Tau Sigma (Mechanical Engineering)
*Primannum Honor Society
*Psi Chi (Psychology)
Sigma Alpha Omicron (Microbiology)
Sigma Delta Chi (Journalism)
*Sigma Delta Pi (Spanish)
*Sigma Tau Delta (English)
*Tau Beta Pi (Engineering)

Tau Beta Sigma

*Member of Association of College Honor Societies

Intercollegiate Athletics

Comcast Center
301-314-7075
www.umterps.com

The Department of Intercollegiate Athletics is responsible for directing intercollegiate athletic programs for both women and men, and for managing the campus' athletic complex.

Women's intercollegiate athletic teams include cross country, field hockey, soccer and volleyball in the fall; basketball, competitive cheer, swimming, indoor track/field and gymnastics during the winter; and lacrosse, softball, outdoor track/field and water polo in the spring. Tennis and golf competition is scheduled in both the fall and spring seasons.

There are men's teams in football, soccer and cross country in the fall; basketball, swimming, wrestling, and indoor track/field during the winter; and baseball, lacrosse and outdoor track/field in the spring. Tennis and golf competition is scheduled in both the fall and spring seasons.

Men's and women's intercollegiate athletic teams compete in the National Collegiate Athletic Association (NCAA) at the Division I level and in the Atlantic Coast Conference (ACC).

Eligibility Requirements

Student-athletes must meet all NCAA, ACC and University of Maryland requirements for eligibility. The chart below serves **only** as a guideline to eligibility rules and does not provide complete detail. All NCAA requirements are available via www.NCAA.org.

NCAA Continuing Eligibility and Progress Towards Degree Guidelines

Year of Initial Collegiate Enrollment	Semester of Full-Time Enrollment	NCAA Requirements
	Entering 1st semester (1st year)	Must be certified by the NCAA Eligibility Center
	Entering 2nd semester	* 6 degree applicable credits earned previous semester * 1.29 UM GPA
	Entering 3rd semester (2nd year)	* 18 hours earned during previous regular academic year and 24 for the year *6 degree applicable credits earned in previous semester *1.8 NCAA GPA
	Entering 4th semester	* 6 degree applicable credits previous semester * 1.80 NCAA GPA

Fall 2003 - present	Entering 5th semester (3rd year)	* 40% (*48 degree applicable credits) of degree requirement completed * 18 hours during previous regular academic year * 6 degree applicable credits earned previous semester * 1.90 NCAA GPA * declaration of degree program
	Entering 6th semester	* 6 degree applicable credits earned previous semester * 1.90 NCAA GPA
	Entering 7th semester (4th year)	* 60% (*72 degree applicable credits) of degree requirement completed * 18 hours earned during previous regular academic year * 6 degree applicable credits earned previous semester * 2.00 NCAA GPA
	Entering 8th semester	* 6 degree applicable credits earned in previous semester * 2.00 NCAA GPA
	Entering 9th semester (5th year)	* 80% (*96 degree applicable credits) of degree requirement completed * 18 hours earned in previous regular academic year * 6 degree applicable credits earned previous semester * 2.00 NCAA GPA

**Based on 120 credit degree program*

1. Student-athletes are allowed 4 seasons of eligibility within 5 calendar years from the time they first enroll full-time in a collegiate institution. When they participate in any competition in their sport (including a scrimmage with outside competition), whether it is for one minute or an entire contest, they have used a season of competition and one of their four years of eligibility.

2. Student-athletes must be enrolled full-time, that is, carry a minimum of 12 credit hours each semester to be eligible to practice or compete with their team. If a student-athlete drops below 12 hours he/she will immediately be ineligible to practice or compete, and his/her athletics grant-in-aid will be revoked unless otherwise approved by the Department of Athletics. Graduating seniors who need less than 12 credit hours to complete degree requirements may receive an exception to enroll in less than 12 credit hours by completing a Less Than 12 form available in the ASCDU.

3. Student-athletes are required to meet multiple sets of academic standards in order to maintain eligibility for athletic competition. These standards are dictated by the NCAA and the Athletic

Council. In addition, student-athletes may be required to maintain standards dictated by the college of their major for either admission into a degree program, or maintaining enrollment.

4.Transfer student-athletes must meet all NCAA, ACC and UMD requirements in order to be immediately eligible. Please note that in certain cases NCAA and ACC eligibility requirements are more stringent than UMD admissions requirements.

5. Ineligible student-athletes are not permitted to compete or travel.

6. First semester freshman who do not meet the cumulative GPA requirements, may seek an appeal under certain circumstances. Transfer student-athletes are required to attain the appropriate cumulative GPA based upon the number of full-time semesters they have been enrolled in any institution.

7.Dismissed and later reinstated student-athletes are ineligible for competition until they meet designated grade point averages.

The Department of Intercollegiate Athletics (ICA) also sponsors a number of awards for achievement in athletics and/or scholarship. For further information, contact the Academic Support and Career Development unit (ASCDU), 301-314-7043.

International Education Services

3116 Mitchell Building
301-314-7740
Director: Valerie Woolston
E-mail: iesadv@deans.umd.edu
www.international.umd.edu/IES

International students and faculty receive a wide variety of services designed to help them benefit from their experience in the United States. International Education Services (IES) works closely with the Office of Undergraduate Admissions, evaluating academic records from overseas and processing applications for English proficiency, visa, and financial requirements. IES sponsors orientation programs, immigration and employment seminars, and the Global Communities, living-learning program in Dorchester Hall. IES advisors counsel international students concerning immigration and personal issues.

F-1 and J-1 status students. Students with F-1 or J-1 status are responsible for following the regulations of the U.S. Customs and Immigration Service(USCIS) pertaining to their visa status. The regulations affect extension of stay, transfers, off-campus employment authorization, practical training, and course loads. The Office of International Education Services is the only office on campus authorized to sign immigration documents.

Maintaining Status

- **Full-time registration:** In order to maintain full-time student status for immigration purposes, F-1 and J-1 undergraduate students are expected to register for and complete a minimum credit load of 12 hours per semester. Pre-approval from IES is required if you are going to complete the semester with fewer than 12 credits.
- **Documents:** International students must have a valid passport at all times unless exempt from

passport requirements. If your I-20 or DS-2109 will soon expire you should apply for an extension at least 30 days prior to the program completion date on the document. To travel outside theU.S. and re-enter as an F-1 or J-1, an advisor in IES must sign your I-20 or DS-2109 before you leave.

- **Health Insurance:** J-1 students are required to carry adequate health insurance while attending the university. Students must either purchase the health insurance plan available in the Health Center or show proof of coverage that meets Department of State guidelines. F-1 students are strongly encouraged to purchase university health insurance. Visit the Health Center for assistance with insurance.

Letters and Sciences

1117 Hornbake Library
Assistant Dean/Director: Deborah Reid Bryant, Ph. D.
General Advising: 301-314-8418/9
Pre-Law Advising: www.prelaw.umd.edu
Credit-by-Exam: 301-314-8418
www.ltsc.umd.edu

Letters and Sciences is the academic home for students exploring a variety of fields before selecting a major, for post-baccalaureate students taking additional course work, and for non-degree seeking students taking undergraduate courses. Letters and Sciences may also serve as the academic home for students completing requirements for entry into a Limited Enrollment Program.

For more information, see Office of Undergraduate Studies section in Chapter 6.

Maryland English Institute (MEI)

1121 Holzaphel Hall
301-405-8634
Director: Marsha Sprague
www.international.umd.edu/mei

The Maryland English Institute (MEI) provides English language instruction and assessment at the postsecondary level for speakers of other languages who wish to learn English for academic, professional, or personal reasons. MEI fulfills its mission by providing

- courses for matriculated students
- courses for international teaching assistants
- a full-time, multi-level Intensive English Program
- short courses for members of the campus and local community
- custom-designed programs
- evaluation of the English language proficiency of prospective and provisionally admitted students
- assessment of oral communication skills of international teaching assistants

MEI offers rigorous courses of study while providing a positive and supportive learning community and promoting intercultural understanding.

Two regular instructional programs are offered for provisionally admitted and prospective undergraduate students who are non-native speakers of English: a semi-intensive program for provisionally admitted students and a full-time intensive program for prospective students.

Semi-Intensive (UMEI 005): This program is open only to students admitted to the University of Maryland. For information on University of Maryland English proficiency requirements, please see the International Education Services web site at http://www.international.umd.edu/ies/. Students who are provisionally admitted to the University satisfactorily complete UMEI 005 their first semester in order to become fully admitted, full-time students at the University. UMEI 005 classes meet five days a week, two hours a day. The program is designed especially to perfect the language skills necessary for academic work at the University of Maryland. Enrollment is by permission of the director, and no credit is given toward any University degree.

Intensive: This full-time English language program is open to non-native speakers who wish to improve their English for academic, professional or personal reasons. There are three intensive English sessions per year: One for fall semester, one for spring, and a seven-week session in the summer. Each consists of approximately 23 hours of instruction weekly. The program offers five levels of instruction, advanced beginning through advanced.

Satisfactory completion of the program does not guarantee acceptance at the University. Enrollment is by permission of the director, and no credit is given toward any University degree. Tuition remission can not be applied to MEI courses.

Office of Multi-Ethnic Student Education (OMSE)

1101 Hornbake Library
301-405-5615 or 405-5616
www.umd.edu/OMSE

The Office of Multi-ethnic Student Education at UMD currently serves over 8,200 multi-ethnic students. Many of the students served by OMSE are achieving at high rates of personal and professional excellence. Nevertheless, there are others who are experiencing academic and personal challenges as outlined in the Office of Institutional Research Planning and Assessment, UMCP data on undergraduate retention and graduation rates. OMSE provides programs and resources that support the academic, personal and professional excellence of students. The mission of the Office of Multi-ethnic Student Education is directly linked to the elimination of the achievement gap at the University of Maryland. With that goal in mind, OMSE provides direct and indirect services through programs such as a walk in tutorial program, study lab, weekly honors program, mentoring program, Check In, Academic Honor Society, College Success Scholars, Road Map to Success, Gold Standard, annual American Indian Powwow and a myriad of services that recognize the racial and ethnic nuances of students.

OMSE's services emphasize the importance of "seeing" all students from a global integrated perspective. The OMSE team is dedicated to our motto of high expectations, high standards and ongoing excellence. The political and historical patterns of the University of Maryland continues to frame our unwavering commitment to addressing the climate of indifference, racial/diversity incompetence and misinformed perspectives that continue to permeate the everyday experiences of multi-ethnic students. OMSE encourages all students to identify empowering strategies to ensure matriculation, retention, graduation, and excellent academic outcomes.

Oak Ridge Associated Universities

Melvin Berstein, Vice President for Research
ORAU Councilor, University of Maryland
www.orau.org

Since 1951, students and faculty of University of Maryland have benefited from its membership in Oak Ridge Associated Universities (ORAU). ORAU is a consortium of 98 colleges and universities and a contractor for the US Department of Energy (DOE) located in Oak Ridge, Tennessee. ORAU works with its member institutions to help their students and faculty gain access to federal research facilities throughout the country; to keep its member informed about opportunities for fellowship, scholarship, and research appointments; and to organize research alliances among its members.

Through the Oak Ridge Institute for Science and Education (ORISE), the DOE facility that ORAU operates, undergraduates, graduates, postgraduates, as well as faculty enjoy access to a multitude of opportunities for study and research. Students can participate in programs covering a wide variety of disciplines including business, earth sciences, epidemiology, engineering, physics, geological sciences, pharmacology, ocean sciences, biomedical sciences, nuclear chemistry, and mathematics. Appointment and program length range from one month to four years. Many of these programs are especially designed to increase the numbers of underrepresented minority students pursuing degrees in science-and engineering-related disciplines, and details on locations and benefits can be found in the *ORISE Catalog of Education and Training Programs*, which is available at www.orau.gov/orise/e
www.orau.gov/orise/educ.htm, or by calling the contacts below.

ORAU's Office of Partnership Development seeks opportunities for partnerships and alliances among ORUA's members, private industry, and major federal facilities. Activities include faculty development programs, such as the Ralph E. Powe Junior Faculty Enhancement Awards, the Visiting Industrial Scholars Program, consortium research funding initiatives, faculty research and support programs as well as services to chief research officers.

For more information about ORAU and its programs, contact:

Melvin Bernstein
Vice President for Research
ORAU Councilor for University of Maryland

Monnie E. Champion
ORAU Corporate Secretary
865-576-3306

Visit the ORAU home page at www.orau.org.

Orientation

1102 Cole Field House
301-314-8217
Director: Gerry Strumpf
www.orientation.umd.edu

The goal of Orientation is to introduce new students to the University of Maryland community. The Orientation Office offers a wide range of transitional programming and services for students and their families as they prepare to attend the University of Maryland.

For more information, see Office of Undergraduate Studies section in Chapter 6.

Pre-College Programs

1101 West Education Annex
Executive Director: Georgette Hardy DeJesus
www.precollege.umd.edu
Upward Bound Programs: 301-405-6776
Upward Bound-Math and Science Program (UB-MS): 301-405-1773

The University of Maryland Pre-College Programs in Office Of Undergraduate Studies is comprised of the federally and state funded programs. These programs generate the skills and motivation necessary for success in post-secondary education. Pre-College Programs is part of the Federal TRIO Programs, which provides educational opportunity outreach programs designed to motivate and provide support to low-income and/or first-generation college bound high school students.

For more information, see Office of Undergraduate Studies section in Chapter 6.

Office of the Registrar

First floor Mitchell Building
301-314-8240
Registrar: William F. McLean
www.testudo.umd.edu

The Office of the Registrar provides services to students and academic departments related to the processes of registration, scheduling, withdrawal, and graduation. The office also maintains students' academic records and issues transcripts. Staff members are available to students for consultation. For detailed information about registration procedures, student records, and academic regulations, see chapter 4.

Maryland Center for Undergraduate Research (MCUR)

2100D (2nd Floor) McKeldin Library
301-314-6786
Francis DuVinage
ugresearch@umd.edu
www.ugresearch.umd.edu

The Maryland Center for Undergraduate Research (MCUR) is an initiative from the Office of the Dean of Undergraduate Studies. Created as a resource for faculty and students, the Center serves as a clearinghouse for both on-campus and off-campus research opportunities for undergraduate students. Additionally, faculty members can share different models for incorporating undergraduate students into research programs, and ways of infusing undergraduate research into the curriculum.

For more information, see Office of Undergraduate Studies section in Chapter 6.

Center for Teaching Excellence

0405 Marie Mount Hall

301-405-9356
Director: Spencer Benson
cte@umd.edu
www.cte.umd.edu

The Center for Teaching Excellence supports departmental, individual and campus-wide efforts to enhance teaching and learning at the University of Maryland. The Center offers assistance to departments, faculty, graduate and undergraduate teaching assistants. The Center also administers an undergraduate teaching assistants program, a University-wide teaching and learning program for graduate teaching assistants, the Lilly Teaching Fellows program, the Instructional Improvement Grants program, and various Scholarship of Teaching and Learning programs.

For more information, see the Office of Undergraduate Studies section in Chapter 6.

Tutoring

2110 Marie Mount
301-405-4745
www.umd.edu/AAP

The Intensive Educational Development Program (IED) in the Academic Achievement Programs (AAP) provides tutoring services for eligible University of Maryland students. The schedule for tutoring, study skills, math support, and English support classes is available at 2110 Marie Mount. Academic support classes are offered for many lower-level CORE classes, including math and English classes, as well as for selected entry-level classes for numerous majors (for example Business or Biological Sciences). For a schedule of classes as well as eligibility status for AAP's services, please contact the Tutoring Coordinator at 301-405-4745 or yukako@umd.edu. Also, please check AAP's webpage at www.umd.edu/aap for schedules, job opportunities as tutors, and further information about the program.

STUDENT PROGRAMS AND SERVICES

Alumni Association

Samuel Riggs IV Alumni Center
301-405-4678
www.alumni.umd.edu

The University of Maryland Alumni Association is a non-profit, membership organization for alumni of the University of Maryland, College Park. By taking traditional and innovative approaches to alumni programming, the alumni association fills many purposes, including the needs of students.

In conjunction with Senior Council and the Office of Student Affairs, the association supports professional development programs to prepare students for life in the "real world." Prospective and current students may apply for scholarships through the Maryland Alumni Association Scholarship Program. New graduates receive a one-year complimentary membership in the alumni association that includes its full range of benefits. Years two and three after graduation are offered at a discounted rate of $25 per year. The alumni association also offers graduates access to the TerpNation Network-a free online social and career tool allowing graduates to connect with Maryland alumni and friends based on shared interests, common acquaintances, professions, locations and more. Upon graduation, the alumni association invites new graduates to join its Young Alumni Club, which provides activities for alumni who have graduated in the last 10 years.

In addition to student programming, the alumni association honors alumni who have distinguished themselves professionally and personally through the University of Maryland Alumni Association Hall of Fame and Annual Awards Gala. It provides special programs and services, such as consumer discounts, that benefit all alumni. It promotes continuing education through its cultural seminars and international travel program. Most of all the alumni association seeks to build the Terrapin Spirit by supporting more than 30 alumni clubs and academic chapters throughout the country and the world.

The alumni association has 31 staff members, is governed by a board of alumni volunteers, and is supported by countless other alumni volunteers around the country.

Book Center

Stamp Student Union, lower level
301-314-BOOK
www.shopterp.com

The University Book Center operated by Barnes & Noble is the *official* bookstore for the University of Maryland. The Book Center is only store that carries textbooks for *all* of your classes. A large selection of general-interest books, literature, technical books, and best sellers can be found on the lower level of the store. The Book Center also carries a wide selection of school supplies, and imprinted sportswear and related items. The Book Center website is www.shopterp.con

The Book Center is open:

Monday - Thursday	9:00 a.m. - 7:00 p.m.
Friday	9:00 a.m. - 6:00 p.m.
Saturday	10:00 a.m. - 4:00 p.m.
Sunday	12:00 a.m. - 4:00 p.m.

* Additional hours for special events.

University Career Center and the President's Promise (UCC/TPP)

3100 Hornbake Library, South Wing
301-314-7225
UCC: help@umd.edu
www.CareerCenter.umd.edu

Refer to our web site for current hours of operation and hours of career assistance.

Mission

The University Career Center and The President's Promise office supports the University of Maryland's mission and its academic programs by providing a variety of programs and services to meet the diverse career development and employment needs of degree-seeking students and alumni. The Center teaches, advises and counsels students to make decisions about career interests, employment and furthering educational pursuits such as professional or graduate school. It collaborates with academic departments, employers and alumni in the delivery of workshops, services and career/internship fairs.

Time and again employers state that the competitive candidate will have outside the classroom experiences that complement the academic curriculum. Through the President's Promise, each student has the chance to engage in a special experience and offers the opportunity for extraordinary personal growth. Some students achieve this growth through hands-on research, study abroad, or internships in the public and private sectors. Others take on leadership roles or find fulfillment in community service programs. President's Promise staff is available to help students navigate through all options to select the best opportunities. In addition, dedicated faculty and staff are also available to help students chart a course to enhance their academic experience.

Resources

Career and Employment Resource Room: The Career and Employment Resource Room is a central place to learn about our many services and resources on career planning, internships, applying to graduate/ professional school, and the job search. The Resource Room contains a comprehensive collection of books, computers with internet connections, and employer information. Peer Career Educators are also available to answer questions and assist in the use of available resources. The Resource Room is open to all graduate and undergraduate students and alumni of the University of Maryland College Park and Shady Grove campuses.

Career Assistance: Thirty-minute Same Day Career assistance appointments and pre-scheduled Individual Career Assistance appointments are available with our staff. During this time assistance is provided to students in identifying majors suited to their interests, helping them to understand the world of work, and preparing them for the job search by focusing on their skills and interests. We also provide guidance in the graduate school application process, and work with alumni in beginning their career changes. (Phone 301.314.7233)

Web Resources: The UCC/TPP provides 24 hour access to various resources:

> **www.CareerCenter.umd.edu:** read articles about career planning, job hunting, and employment trends; keep up-to-date about new programs, services, and events; register for Careers4Terps; access FOCUS and explore graduate school options. An extensive list of links to other Internet job and career sites will provide additional help.
> **www.international.umd.edu/ge:** research, identify, connect with and engage in international study, internships, volunteering, teaching, and work experiences.
> **www.PresidentsPromise.umd.edu:** navigate the opportunities available at Maryland that complement student academic pursuits and bring classroom knowledge to life.

Careers4Terps (C4T): For fast and comprehensive access to employment opportunities, all students should register for Careers4Terps, which provides students free access to Job Listings, On-Campus Interviewing and Resume Referral. It also gives you updated information on career and job fairs and employer information sessions. C4T students receive special e-mail bulletins on upcoming employment events related to their major.

On-Campus Interviewing (OCI): OCI offers students the opportunity to interview on campus with a variety of organizations for full-time, internship, or part-time positions. To participate, students must register for Careers4Terps. OCI is also available to recent alumni.

Job Listing: Current job listings-including part-time, internship, graduate assistantship, and full-time positions are accessible 24 hours via C4T. Additional jobs are often posted on the bulletin boards inside the UCC/TPP suite. Students seeking short term part-time jobs should consider our Quick Bucks e-mail service.

Credentials Services: Undergraduate/graduate students and alumni of the University of Maryland College Park and Shady Grove campuses can establish permanent professional files to hold *letters of recommendation* and background information in support of applications for employment and graduate/professional school. There is a small fee.

Resume Referral: Students and alumni can present their qualifications to employers who are not interviewing on campus. By registering with Careers4Terps you join a pool of candidates accessible to employers who are requesting applicants with specific skills or backgrounds to fill their current job openings. Employers review resumes and then directly contact qualified candidates to arrange office interviews or to request additional information.

Virtual Mock Interviews: These are self-produced practice interviews. Through use of an interactive kiosk located in the UCC/TPP suite, sessions are digitally recorded and streamed to an online account for your review with a career advisor.

Terp Externship: An externship is a short job shadowing experience that provides you with the opportunity to observe and network with professionals, investigate a career field, clarify career goals and interests, and function within a work environment. Applications are accepted mid-fall semester for winter term experiences.

Terp Career & Job Search Guide: This is a special guide for career planning, conducting a job search and applying to graduate school. Contents include resume writing guides, successful interviewing techniques and job search strategies.

Terp Network: This is a Web-based database featuring contact information for parents, alumni and friends of the University of Maryland who are interested in providing career advice and role modeling to current Maryland students.

Academic Courses: The UCC/TPP offers several career development courses:

> **EDCP108I - Academic Transition into Internships:** A one-credit course designed to provide students with the full experience of searching for searching and successfully obtaining an internship. Themes may include understanding the relationship of internship experiences to majors and/or career paths, setting learning objectives, making the most of an internship experience, and evaluating offers. (Recommended for Freshmen, Sophomores, and Juniors.)
>
> **EDCP 108J - Job Search Strategies:** Designed for students who are seeking to learn

more about strategies for landing full time employment and succeeding at work. Themes may include correspondence and interview preparation, determining fit and appropriateness of positions, setting realistic expectations for salaries and duties, appropriate work etiquette, networking, selecting references, on-the-job success, and managing work cultures and dynamics. (Recommended for Juniors and Seniors.)

UNIV099 - Internship Experience: Designed to complement students supervised work experiences. Topics may include exploring career options, developing professional work skills, and examining the relationship between internship and academic coursework. Good academic standing, submission of transcript, and internship description and approval of instructor required.

Career Development Programs: Special events bring students and employer representatives together for information exchange and employment contact. Stay tuned on the following special events through our Web site:

- University Career Center Events & Workshops
- Internship and Part-Time Job Fair
- Fall Career Fair
- Winter Jobs Fair
- Spring Career Fair
- Maryland/Metropolitan Education Expo
- Diversity Job Search Series
- National Student Employment Week
- And more

Federal Work Study Students Note: Students eligible for Federal Work Study/Community Service positions should contact the Office of Student Financial Aid: www.umd.edu/FIN/ or 301-314-9000.

Engineering Majors Note: Additional support for part-time, internship and cooperative education positions is available through the Engineering Co-op and Career Services office at 301-405-3863.

Business Majors Note: Additional support for part-time, internship, cooperative education, and full-time positions is available through the Undergraduate Business Career Center office at 301-405-7103.

University Counseling Center

Susquehanna Hall (4th Floor) and South Campus Dining Hall (3rd Floor)
301-314-7651
301-314-9206 (fax)
www.counseling.umd.edu

From Summer 2009 to Summer 2010, the University Counseling Center is temporarily relocating to the 4th Floor of Susquehanna Hall, and the 3rd Floor of the South Campus Dining Hall while its usual home, the Shoemaker Building, undergoes renovations. The Center will still provide all of its services, but check below to see where each unit will be housed.

Seeking help is a sign of strength! Many students encounter a variety of personal, social, career, and academic issues that call for assistance beyond advice provided by friends and family. Fortunately, the University Counseling Center provides free and confidential counseling services to all University of Maryland students. To schedule an appointment call 301-314-7651 or stop by the 4th Floor of Susquehanna Hall. Walk-in counseling is available to students of color who would like a consultation with a counselor of color and GLBTQ students who would like a consultation with a gay, lesbian or a gay ally counselor, daily from 3:00 p.m. to 4:00 p.m. Students who seek help in choosing a major can walk-in for consultation with a career counselor on Wednesdays from 1:00 p.m. to 3:00 p.m.

Counseling Center Services

Personal/Social Counseling. You don't have to deal with your problems alone. In a warm and supportive environment, you can meet with a professional counselor to discuss any concern you may have related to your personal and social well-being. Among the topics many students discuss in counseling are self-esteem, stress, anxiety, depression, relationship issues, sex, family problems, and loneliness. You may see a counselor for individual counseling, couples counseling, or join one of the many counselor-led support groups. ***Susquehanna Hall (4th Floor).*** Call 301-314-7651. www.counseling.umd.edu/Structur/cslgservice.htm

Career Counseling. A normal part of your development in college is identifying who you are in relation to a future career. You can get help with this process in individual career counseling at the University Counseling Center. Your exploration may include taking career interest tests and interpreting the results with a professional counselor or taking advantage of a computerized career information system. Whether you are choosing a major, establishing career goals, or considering job opportunities, it is important to understand how your personality, values, and interests relate to your future professional life. Career counseling at the Counseling Center is a good place to begin. The Majors Walk-in program is available on Wednesdays from 1:00-3:00 p.m. ***Susquehanna Hall (4th Floor).*** Call 301-314-7651. www.counseling.umd.edu/Services/srv_car.htm

Academic Skills Counseling. Many students would like to improve their academic skills. If you're tired of struggling because of your own weak areas, schedule an appointment to see the University Counseling Center's education specialists in the Learning Assistance Service (LAS). The counselors in LAS can help you enhance such skills as reading, writing, note-taking, learning science and math material, and learning statistics. Workshops cover a range of topics, including study skills, exam skills, time management, English conversation, end-of-semester survival skills, and strategies for completing your thesis or dissertation. ***South Campus Dining Hall (3rd Floor).*** Call 301-314-7693 or email las-cc@umd.edu. www.counseling.umd.edu/LAS

Workshops and Group Counseling. You can gain strength to deal with your concerns by getting together with other people who share similar problems, interests, and goals. Each semester, the University Counseling Center offers weekly support groups addressing a variety of topics, such as career exploration, dissertation support, procrastination prevention, and stress management. Recent group offerings have included, "Circle of Sisters," a support group for black women; "My Body-My Self: A Woman's Group," which addresses problems of body image and eating; and a Self Care and Wellness group that assists people with strategies for staying healthy, psychologically and physically. ***Susquehanna Hall (4th Floor).*** Call 301-314-7651. www.counseling.umd.edu/Services/srv_grp.htm

Support for Students with Disabilities. The University Counseling Center's Disability Support Services, provides a range of services for students with disabilities, including help in locating interpreters for deaf or hard-of-hearing students; readers for visually-impaired students, blind students, and students with learning disabilities; and assistance with access to various buildings and facilities on campus. If you are a new or returning student, contact the Disability Support Services Office in the Counseling Center as soon as possible. ***Susquehanna Hall (4th Floor).*** Call 301-314-7682, voice and TTY. www.counseling.umd.edu/DSS/

Returning Students Program. If you are over 25 and returning to school after a break in your formal education, you probably have different needs than the traditional college student. The Returning Students Program in the University Counseling Center's Learning Assistance Service (LAS) is designed to help you with the transition to academic life. Workshops, counseling, and publications are available at the Counseling Center to make your adjustment to the university successful. ***South Campus Dining Hall (3rd Floor).*** Call 301-314-7693. www.counseling.umd.edu/LAS

Testing Services. The Testing, Research and Data Processing Unit, in the University Counseling Center administers tests for counseling purposes, such as career interest inventories, and also administers national standardized tests, such as the GRE, LSAT, MCAT, GMAT, and Miller Analogies. ***South Campus Dining Hall (3rd Floor).*** Call 301-314-7688. www.counseling.umd.edu/Structur/str_trdp.htm

Research Services. Group and individual consultation are available if you need assistance with research design and statistics and writing project proposals, theses, and dissertations. ***Susquehanna Hall (4th Floor).*** Call 301-314-7687. www.counseling.umd.edu/Structur/trdpurschgrp.htm

Support for Parents of College Students. The Parent Warmline is a confidential telephone and email service for any parent concerned about his or her student's adjustment at college, including concerns impacting academic, social, and emotional realms, and overall mental health. Parent Warmline staff can be contacted at 301-314-7651 or parentwarmline@umd.edu. ***Susquehanna Hall (4th Floor).***

Parent and Child/Adolescent Counseling and Evaluation. The University Counseling Center's, University Parent Consultation and Child Evaluation Service (UPCCES) provides University-connected families with children (ages 4 to 18) with a range of services, including individual and group therapies, school consultation, and parent consultation. Intellectual and emotional/behavioral evaluation is also available for youth with school and learning concerns. ***Susquehanna Hall (4th Floor).*** Call 301-314-7673 or parentchild@umd.edu. www.counseling.umd.edu/Structur/str_pccs.htm

University Counseling Center Hour

Counseling Service appointments (all students)	**301-314-7651**
Monday-Thursday	8:30 am to 9:00 pm
Friday	8:30 am to 4:30 pm
Students of Color Walk-In Hours	no appointment needed
Monday - Friday	3:00 pm to 4:00 pm

Rainbow Walk-In	no appointment needed
Tuesday - Friday	3:00 pm to 4:00 pm
Majors Walk-in	no appointment needed
Wednesdays	1:00 pm to 3:00 pm
Learning Assistance Service	**301-314-7693**
Mondays	8:30 am to 7:00 pm
Tuesday - Friday	8:30 am to 4:30 pm
Disability Support Services	**301-314-7682**
Monday - Friday	8:30 am to 4:30 pm
Testing, Research and Data Processing Unit	**301-314-7688**
Monday - Friday	8:30 am to 4:30 pm
Variable evening hours for testing purposes	
University Parent Consultation and Child Evaluation Service	**301-314-7673**
Monday - Friday	8:30 am to 4:30 pm
Evening hours by appointment	

Dining Services

1109 South Campus Dining Hall
Dining Plans: 301-314-8069
Terrapin Express: 301-314-8068
Student Employment: 301-314-8058
umfood@dining.umd.edu
www.dining.umd.edu

The University of Maryland offers one of the ten largest self-operated and self-supported dining services programs in the country. Our goal is to provide popular and nutritious food in a welcoming setting every day. We offer a variety of dining plan alternatives to maximize convenience and flexibility and exceed your dining expectations. Dining locations are situated all over the campus close to academic buildings and residence halls. Our two main dining rooms are open until midnight on most weekday nights.

Dining options include a large selection of traditional entrees as well as more trendy, popular food choices. Dining rooms feature a total of 21 culinary stations including a stuffed-to-order burritos stop; hot and cold delis; self-serve and custom-made salad bars; ice cream and bakery stations; grills and fryers; classic comfort food meals; internationally-themed lunch and dinner venues; Italian and

Asian serveries; an all-vegan station; and our new Mongolian grills.

In addition to the dining rooms, there are restaurants, cafés, and convenience shops scattered across campus to satisfy University of Maryland students and the campus community. For a complete list of our dining locations, hours, and general information please visit dining.umd.edu or call us at 301-314-8069. We are where you are - and we welcome students, faculty, staff and visitors into all of our locations across campus.

Resident Dining Plans. Your dining plan works like a debit account: you use your points whenever and as often as you would like throughout the semester. You purchase food à la carte - even in our resident dining rooms. Enjoy a light snack, a quick meal to go, a full dinner, bring guests - it's all up to you!

You access dining points using your UM ID card. Your picture is on the front and you must be present every time the card is used. Check point balances online 24/7 or ask for a receipt showing your balance after any transaction.

Every resident dining plan consists of two accounts, Resident Points and Terp Bucks. Points may be used in the South Campus Dining Room and The Diner. If you use all your Points, these locations will automatically tap into your Terp Bucks. Bucks provide you with flexibility in spending and are accepted at many of the cafés and convenience shops on campus. As a bonus, Adele's Restaurant accepts Points for dinner Monday through Thursday. A third account, Terrapin Express, may also be loaded onto the UM ID card. Terrapin Express is not a dining plan, it's a pre-paid account accepted virtually everywhere on campus. See dining.umd.edu/terrapin for details.

The Apartment Dining Plan. We offer the Apartment Plan to students not living in traditional campus residences. The Apartment Plan works very much the same as residential dining plans, offering students the ability to purchase food on campus without carrying cash or a credit card; the security that if the UM ID card is lost, the account can be frozen and then attached to a replacement UM ID card; and the convenience of paying through the Bursar's Office during the regular billing cycle or by using financial aid or scholarship money. Apartment Plan points roll over from fall to spring semester. For details see our web site.

We are confident that you will be impressed by the quality and exceptional selections available throughout the dining locations across campus. See you at lunch!

Terrapin Express

Terrapin Express is a pre-paid debit account, not a substitute for a dining plan. It is a wonderful way to supplement a dining plan and a great alternative for students living in campus apartments or off-campus. Terrapin Express accounts are available to all students, faculty and staff through the Terrapin Express Office at 1109 South Campus Dining Hall or online through Testudo web services. Check our web site for a complete listing of participating dining and non-dining locations.

Office of Fraternity and Sorority Life

1110 Stamp Student Union
301-314-7172
www.greek.umd.edu
Office Hours: Monday - Friday. 8:30 a.m. - 5:00 p.m.

Social and community service-based fraternities and sororities, and their leadership, are advised and supported by the staff in the Office of Fraternity and Sorority Life. The office also advises the four student governing councils: The Interfraternity Council (IFC), the Panhellenic Association (PHA), the Pan-Hellenic Council (PHC) and the United Greek Council (UGC). The office also manages university-owned fraternity and sorority houses and coordinates off-campus houses.

University Health Center (UHC)

Campus Drive, Building 140
301-314-8180
310-314-7845 (fax)
www.health.umd.edu

The University Health Center, located on Campus Drive across from the Stamp Student Union, is a nationally accredited ambulatory health care facility. Every currently registered student living on- or off-campus is eligible to use the UHC. The UHC is open during the hours listed above, with varied hours during semester breaks, holidays and summer sessions. Visit the UHC Web site for up-to-date information. Students are seen by appointment only for routine care 9 a.m.- 5 p.m. on weekdays. Some appointments can be scheduled www.health.umd.edu through. "myUhc" A limited number of same day appointments are available. Medical services are limited after 5 p.m. and on Saturdays. Urgent Care services are available without an appointment for the evaluation of urgent medical problems. The After Hours NurseLine (301-314-9386), a free medical advice and information service, is available to all registered students when the UHC is closed.

Fees, Services and Health Insurance

There is a $15 fee for visits with most of our providers. Fees may vary depending on the type of service. There is also a "Missed Appointment/Late Cancellation" fee. To avoid the charge, appointments must be canceled or rescheduled at least 24 hours in advance. Massage and acupuncture appointments must be canceled within 72 hours of the appointment. Additional fees are charged for services such as: dental health, laboratory, radiology, immunizations, allergy injections, casts, physical therapy, medications and supplies dispensed through the pharmacy and medical units, massage, acupuncture, substance abuse counseling and various medical procedures and orthopedic supplies. Charges are posted to the student's Bursar Account or can be paid at the time of visit in the UHC. Charges paid for at the time of visit will not appear on the Bursar Account.

Services provided by the UHC include: Primary Care, Urgent Care, men's and women's reproductive health care, pharmacy, acupuncture, massage therapy, HIV testing, sports medicine, nutrition, meditation, mental health, eating disorder, substance abuse, travel clinic, occupational health, health promotion, and the Sexual Assault Response and Prevention Program. Dental Health Services at the University Health Center are provided and billed by the University of Maryland, Baltimore School of Dentistry. For dental hours call 301-314-9500. The Center for Health and Wellbeing (CHWB), a satellite of the UHC located in the Eppley Recreation Center, is open 12 to 8 p.m. Monday through Thursday and 12 to 5 p.m. Fridays. Hours may vary during the summer. The CHWB provides health promotion programs and services. It does not provide medical services.

Students younger than 18 will need to submit a form giving permission from a parent or legal guardian to be treated, except for mental health and sexual health services. To obtain a form, call 301-314-8180 or go to the Health Center's Web site. For students 18 and older, treatment and visit information cannot be given to parents without the student's written consent or through a court ordered subpoena.

Information regarding mental health or sexual health services cannot be released without the patient's consent. The UHC is in compliance with the Federal Health Insurance Portability and Accountability Act.

In accordance with the new University of Maryland Mandatory Health Insurance requirement, all newly admitted freshmen and transfer students registered for 6 or more credits are mandated to have health insurance. All newly-admitted students must complete an on-line form at www.firststudent.com to indicate whether they either: 1) have insurance (i.e. through parent plans, family plans, or employer-sponsored plans) and wish to waive the requirement or

2) wish to purchase the Student Health Insurance Plan (SHIP) sponsored by the University of Maryland. If the on-line form is not completed by the deadline, students will be charged for the Student Health Insurance Plan. More information regarding Mandatory Health Insurance is available on the UHC website.

The SHIP is available to all students. It provides coverage for accidents and illness as well as travel related vaccines and medications. Students may sign up during the open enrollment periods at the beginning of each semester. The University Health Center is considered an out-of-network health care provider. Students with other health insurance should check with their insurance company to discuss benefits and reimbursement procedures for UHC services. Most HMOs do not cover services outside their areas, so students in outlying counties in Maryland or in other states or nations may want to consider enrolling in the student health insurance plan. Students who are not enrolled in SHIP are charged a fee for most visits and for certain procedures such as x-rays, lab tests, allergy injections, and medications dispensed through the pharmacy and medical units. Fees are waived for students with SHIP.

The pharmacy accepts most major pharmacy plans.

Immunization Requirements

Students at the University of Maryland are required to have received some vaccinations and others are strongly recommended. The University of Maryland requires **all** students to provide proof of two immunization dates for Measles, Mumps and Rubella (M.M.R.) prior to the first day of classes. The Immunization Record must be submitted to the University Health Center on August 1 st for incoming fall semester and January 1 for incoming spring semester students. Students may bring the completed form to orientation, or it can be faxed to 301-314-5234. A copy of the form can be downloaded from the UHC Web site at www.health.umd.edu/forms.

All international students must document Measles, Mumps and Rubella Immunizations (M.M.R., 2 doses) and a Tuberculosis (TB) test completed within the past six months. Students who fail to submit a completed health form, signed by a physician or acceptable alternative documentation will be prohibited from registering for classes after a one-semester grace period. Under Maryland law, students enrolled in a Maryland institution of higher education and who reside in on campus student housing are required to be vaccinated from this law. Either vaccination information or a signed waiver must be included on the immunization form. For more information, visit the UHC Web site, e-mail health@umd.edu, or call 301-314-8180.

Housing: Resident Life

1102 Annapolis Hall
301-314-2100
reslife@umd.edu
www.resnet.umd.edu

The Department of Resident Life is responsible for management of the residence halls as well as the cultural, educational, recreational and social programs and activities for residential students.

While living in a Maryland residence hall is not required, nine of every ten students in Maryland's freshman class make the choice to live on campus. More than 80 professional and graduate staff and over 400 undergraduate student employees meet the needs of resident students.

There are rooms for approximately 8,250 undergraduate students in 36 residence halls. Three different styles of living are available to campus residents: traditional, suites and apartments. Within traditional housing, where most first year residents live, single, double, triple and quadruple room occupancy exists. Our nationally acclaimed living-learning programs include: Beyond the Classroom, CIVICUS, College Park Scholars, EcoHouse, Hinman CEOs, Gemstone, Global Communities, Jimenez-Porter Writers' House, Language House, Honors Humanities and University Honors. All of these programs add to the diversity of on-campus housing options. All rooms have a cable and data jack for each student. One telephone jack is provided in each room.

First time freshmen are guaranteed on-campus housing provided they return their Maryland Planner including the Enrollment Confirmation and Housing and Dining Services Agreement along with the $400 enrollment deposit, by May 1. Transfer students who want to live on campus should complete the Maryland Planner as well and will be allotted housing on a space available basis.

Office of Student Conduct

2118 Mitchell Building
301-314-8204
www.studentconduct.umd.edu

It is the mission of the Office of Student Conduct to resolve allegations of misconduct under the *Code of Student Conduct* and *Code of Academic Integrity* in a manner consistent with the core values of fairness, honesty and integrity while promoting the University's educational mission. Essential to this mission is to enhance the development of character, civility, citizenship, individual/community responsibility, and ethics. University students play a significant role in considering the behavior of their peers and are asked to assume positions of responsibility as members of the university's student judiciary. The following tenets guide this mission:

- To regard each student as an individual, deserving individual attention, consideration, and respect.
- To consider the facts fully and carefully before resolving any case.

- To speak candidly and honestly with each student.
- To hold each student to a high standard of behavior, both to protect the campus community, and to promote student ethical development.
- To recognize the reality of human fallibility, as well as the stresses associated with collegiate life, and to demonstrate compassion, understanding, and a sense of humor.
- To contribute to the educational mission of the University by designing policies, conducting programs, and offering instruction that contribute to the intellectual and ethical development of the entire student body.

General Statement of Student Responsibility. Students are expected to conduct themselves at all times in a manner consistent with the University responsibility of ensuring to all members of the campus community the opportunity to pursue their educational objectives, and of protecting the safety, welfare, rights, and property of all members of the University. Specific expectations for student conduct are outlined in the *Code of Student Conduct* and the *Code of Academic Integrity. See www.president.umd.edu/policies/.*

Disciplinary Procedures. Students accused of violating University regulations are accorded fundamental due process in disciplinary proceedings. Formal rules of evidence, however, shall not be applicable, nor shall deviations from prescribed procedures necessarily invalidate a decision or proceeding unless significant prejudice to one of the parties may result. University procedures are outlined in the *Code of Student Conduct* and *Code of Academic Integrity* supplemented by materials provided by the Office of Student Conduct to assist students who are facing accusations of misconduct.

Nyumburu Cultural Center

Campus Drive
301-314-7758
301-314-0383 (fax)
www.nyumburu.umd.edu

The Nyumburu Cultural Center has served as a major resource of cultural, historical, and social programming at the University of Maryland, College Park for more than thirty-five years. The Center works closely with student, faculty, and community organizations. The Nyumburu Cultural Center offers a variety of socio-cultural, musical, educational and artistic programs to the campus community. The nature of the diverse programming and activities is based on the African American, African, and Caribbean Diaspora experience(s). Nyumburu is home of the Maryland Gospel Choir, Shades of Harlem (performing arts ensemble), The Black Explosion Newspaper, Male Spokesmodel Competition, Miss Unity Scholarship Pageant, Juke Joint, Gospel Happy Hour, Leadership Series, Nyumburu Jazz Club, Kwanzaa Celebration, Cultural Dinner during Black History Month, Literature Conference, Homecoming Alumni Tailgate, Annual Talent Showcase, Annual Student Awards Banquet, Black Male Initiative (BMI) Program, and Sisterhood of Unity and Love (SOUL).

Nyumburu's staff are advisors to many campus student organizations: Black Student Union, African Student Association (ASA), The Maryland Gospel Choir, The Black Explosion Newspaper, Sigma Gamma Rho sorority Inc., Delta Sigma Theta Inc., Alpha Nu Omega Sorority Inc., and Dimensions Modeling Group to name a few.

Nyumburu presents Blues, Jazz, and Gospel music concerts as well as academic courses in Creative Writing (ENGL278C), Blues (AASP298V) and Jazz (AASP298U) for three credits each. Maryland Gospel Choir students earn 1-credit (MUSC329E), and students who take EDCP108N, College and Career Advancement earn 1-credit.

During the summer, Nyumburu sponsors a Summer Camp Program for students from the age of five to sixteen. Through this dynamic eight week program, opportunities for youth to explore academic, artistic, and athletic interests in a relaxed and creative environment are provided. Camp Shule was established to provide the children of Maryland faculty/staff and local youth with a diverse educational experience.

The Multipurpose Room, Conference Rooms, Computer Labs, and the Nyumburu Amphitheatre of the Nyumburu Cultural Center are open to the students, faculty and staff of the University of Maryland. Room reservations are also available at a nominal cost for departmental and off-campus events and programs. Come in and interact with us, meet other students and make your ideas and wishes known. Our staff goal is to make Nyumburu a cultural center that is, "Your Home Away from Home."

Recreation Services, Campus

1115 Eppley Recreation Center
301-405-PLAY (Information)
301-314-5454 (Rec-Check)
www.crs.umd.edu

Campus Recreation Services (CRS) offers a wide variety of recreation programs including aquatics, fitness programs, informal recreation, intramural sports, non-credit instruction, outdoor recreation, and sport clubs.

CRS has some of the most advanced recreation, sports, and fitness facilities in the nation. The CRS facilities include the Eppley Recreation Center (ERC), Ritchie Coliseum, Reckord Armory, Cole Fieldhouse and the weight and fitness areas in the School of Public Health (SPH) building.

The Eppley Recreation Center has two indoor and two outdoor pools for lap swimming and diving. The CRS aquatic program also offers swimming lessons, and lifeguard training.

CRS offers a wide variety of fitness programs throughout the week at ERC and Ritchie Coliseum. These include low-impact, step, and water aerobics, cardio-boxing, and sport conditioning. CRS Informal Recreation programs allow students to enjoy their favorite activity at their leisure, whether it is using cardiovascular equipment, lifting weights, jogging, or playing racquetball, volleyball, basketball or wallyball. CRS has weight rooms and fitness centers located in the ERC, Ritchie Coliseum, and HHP. The fitness centers feature stairclimbers, bikes, rowers, total body conditioners, and treadmills. Weight rooms have a variety of free-weights and weight machines. The ERC also has racquetball/handball/wallyball and squash courts.

Students looking to play team or individual sports or take part in special sporting events will want to participate in the CRS Intramural Sports program. Students can participate year-round in team sports such as basketball, football, and soccer. Individual and dual sports include golf, racquetball, and many more. Intramural sports are structured activities that are open to all men and women from the campus community. Participants can select their own level of competition and play in either men's, women's, grad/fac/staff or coed leagues.

The Outdoor Recreation Center (ORC) is located in the northwest corner of the Eppley Recreation Center. The ORC offers outdoor adventures and clinics throughout the year. Take a backpacking trip, learn how to rock climb, or try white-water kayaking. The Climbing Wall and Challenge Course are two features of the ORC where students may challenge themselves both physically and mentally, increasing interpersonal skills and self-confidence. The ORC also has a resource library for planning your own trips, a bike repair shop, and equipment rentals.

A Sport Club is a student organization, registered with Campus Recreation Services, formed by individuals motivated by a common interest and desire to participate in a favorite sport activity. Clubs vary in focus and programming, since student members manage the operation of the club and decide on club activities. A sport club may be competitive, recreational, instructional, social, or all of these.

Religious Programs

1101 Memorial Chapel
301-314-9866 (Chapel Reservations)
www.chapel.umd.edu

The following chaplains and their services are available:

Baptist	
Ms. Jessice Schulte	2120 Memorial Chapel 301-405-8443 jessbcm@umd.edu
Black Ministries	
Rev. Dr. Ruby Moone	1112 Memorial Chapel 301-405-8445 Rrmoone2@aol.com
Christian Science	
Bob Snyder	2118 Memorial Chapel 301-474-0403 rsnyder@umd.edu
Church of Jesus Christ of Latter Day Saints *(Mormon)*	
Dennis Monson	7601 Mowatt Lane, College Park 301-422-7570

monsondb @ldsces.org

Orthodox

Rev. Kosmas Karavellas
2747 Riva Road
Annapolis, MD 21401
301-261-8218
fatherkosmas@schgochurch.org

Episcopal/Anglican

Rev. Peter Antoci
2116 Memorial Chapel
301-405-8453
eaterps@umd.edu

Hindu

Ms. Kiran Sankhla
2112 Memorial Chapel
301-570-6426
muraris2002@yahoo.com

Jewish - Hillel

Rabbi Ari Israel
Hillel Jewish Student Center
7612 Mowatt Lane, College Park
301-422-6200
aisrael@marylandhillel.org

Jewish - Chabad

Rabbi Eli Backman
Chabad Jewish Student Center
7403 Hopkins Ave., College Park
301-277-2994
chabad@umd.edu

Lutheran

Rev. Elizabeth Platz
Ms.Gail Douglas, Asst.
2103 Memorial Chapel
301-405-8448
lutheran@umd.edu

Muslim

Mr. Tarif Shraim	2118 Memorial Chapel 240-899-8197 tshraim@gmail.com

Roman Catholic

Fr. Kyle Ingels	Catholic Student Center 4141 Guilford Rd., College Park 301-864-6223 frkylel@catholicterps.org

United Campus Ministry

(Presbyterian, Disciples of Christ, United Church of Christ)

Rev. Holly Ulmer	2101 Memorial Chapel 301-405-8450 ulmer@umd.edu

United Methodist

Rev. Kim Capps	2102 Memorial Chapel 301-405-8451 umc@umd.edu

Transportation Services

Regents Drive Garage
301-314-PARK
www.transportation.umd.edu

Parking

The Department of Transportation Services (DOTS) is responsible for managing and maintaining more than 19,000 parking spaces on the University of Maryland campus. All students who plan to park a licensed motor vehicle in one of these spaces must either register for a parking permit at the

DOTS office or park at paid meters. Please note: Due to construction projects on campus, the number of parking spaces could be dramatically reduced. Campus resident freshmen and resident sophomores are eligible to register for a parking permit.

Because the University of Maryland has limited parking spaces, parking regulations are strictly enforced. Illegally parked vehicles, as well as those vehicles not displaying a campus parking permit in areas requiring permits will be ticketed, and students with outstanding parking fines may be barred from registration.

Visit the DOTS Web site for complete procedures and parking regulations, disabled parking information, visitor parking areas, green transportation options, parking registration rates, motor vehicle assistance program information, schedule of fines, and other information.

Park and Rides (Bowie, Burtonsville and Laurel)

The Department of Transportation Services is offering **FREE weekday transportation to faculty, staff and commuter students in the form of park & rides. This service runs from the park and ride lots to the College Park campus.** The Laurel Park & Ride lot is located on the northbound side of Route 197 (Laurel-Bowie Road) - approximately 1/8 mile north of the intersection of Route 197 and Contee Road. The Burtonsville Park & Ride lot is located about 10 miles from campus and is between routes 198 and 29. The Bowie Park & Ride lot is located between routes 197 and Northview Northview Drive about 13 miles from campus. Find more information about these routes online at www.transportation.umd.edu/alt_trans/p&r.html.

Shuttle-UM

Shuttle-UM transit system is a unit within the Department of Trans-portation Services which is predominantly supported by student fees. Shuttle-UM provides commuter, evening, NITE Ride, paratransit, and charter services to University students, faculty, and staff while classes are in session. Schedules are available at the Stamp Student Union Information Desk, the Department of Transportation Services Regents Drive Garage office, the residence halls, and on the DOTS Web site at www.transportation.umd.edu.

Community Service-Learning

0110 Adele H. Stamp Student Union - Center for Campus Life
301-314-2273
www.csl.umd.edu

Community Service-Learning (CSL) promotes service-learning, as an integral aspect of education and fosters university engagement within the larger community. The CSL website contains information and resources such as an interactive database of 800+ community agencies, handouts, and step-by-step guidance for getting involved in service. CSL offers on-site personal assistance, a weekly listserv of service opportunities, and presentations across campus. CSL educational materials also include resources about social issues, leadership, curriculum development, and strategies for facilitating reflection.

Resources For Students

Supports students engaged in service through Alternative Break programs, Community Involvement Interns, and TERPcorps, a student service programming body. CSL participates in campus-wide resource fairs, coordinates volunteer recognition events and programs, and offers a consultation and presentations to any student group or organization.

Resources For Faculty
CSL promotes service-learning within academic courses across disciplines and within the living and learning communities. To that end we offer faculty workshops, individual consultation, sample syllabi, a lending library, and an on-line faculty handbook for service-learning. Programs for faculty include the service-learning undergraduate teaching assistant program, annual instructional improvement grants, and an ongoing assessment program.

America Reads*America Counts
In collaboration with the Prince George's County Public School system and UM's office of financial aid, America Reads*America Counts provides high quality mentoring in local schools that enriches learning opportunities for both college and elementary school students. Approximately 200 Maryland federal work-study, volunteer, and intern students serve as reading and math mentors and work with families on literacy in 18 Prince George's County elementary schools.

Resources For the Community
Community agencies recruit students, faculty and staff by attending the annual involvement fair, participating outreach tables in the student union, and posting information on our interactive database and weekly listserv. CSL sponsors agency orientation programs and offers individual consultation to assist agencies with more targeted recruiting.

Campus Programs

0110 Stamp Student Union
301-314-7174
www.thestamp.umd.edu

The mission of Campus Programs is to support and complement the university's academic mission and to enhance the educational experience of students through exposure and participation in social, cultural, recreational, leadership, intellectual, and governance activities.

Student Organization. Registers all student organizations at the university and provides an online directory of more than 500 groups. Organization support services includes: accounting assistance, advisors' workshops, leadership training programs for organization leaders, involvement sessions offered for classes and semester orientations are some of the ways involvement is nurtured for organizations and individuals. In addition, First Look Fair and Stampfest are large-scale involvement fairs held at the beginning of each semester to showcase the student groups and organizations.

Organization Advising. Major student groups such as the Student Government Association, Graduate Student Government, Peer Leadership Council, TerpVets, the Homecoming Committee, and Student Entertainment Events receive direct advising from Campus Programs staff. Other student groups can also obtain help by request. Assistance in programming, securing a faculty advisor, officer transitions, and efforts to create a new organization is available.

Leadership Development. Offers a wide range of credit-bearing leadership courses in conjunction with the Counseling and Personnel Services Department in the College of Education, including a Minor in Leadership Studies. The office's web site details these offerings. In addition, the staff offers a wide range of training experiences in interpersonal and organizational development ranging from half-day seminars and weekend workshops such as the Maryland Leadership Conference, to full semester leadership programs, Terrapin Leadership Institute and Turtle Camp.

Off-Campus Student Involvement. (OCSI) provides services to support and enhance the educational experience of ALL students who live off-campus. This is achieved through social, educational, informational, and developmental programs to help students be connected to campus, discover involvement and leadership opportunities, and learn more about campus life.

Programs and Leisure Learning Opportunities. Staff mentors student volunteers and leaders to provide options for out of class engagement through recreational options that includes: the Hoff Theater, the Art and Learning Center (offering non-credit courses), the Stamp Gallery (featuring regular displays of the visual arts), the TerpZone (bowling, billiards, and more), as well as Stamp Special Events and Programs. A complete listing of weekday and weekend events is featured in the weekly calendar of the *Diamondback*.

Multicultural Involvement and Community Advocacy

1120 Stamp Student Union
301-314-8600
mica-contact@umd.edu

All of the activities, programs, services and research of the Office of Multicultural Involvement and Community Advocacy strive towards meeting the common outcome of developing "good citizens" towards their graduation, with a particular focus on being culturally competent, effective in diverse group environments, and engaged in a strong ethnic of service to and leadership towards a socially just multicultural community. We organize our work around affirming identities and nurturing their development (i.e., advocacy for students who are Asian Pacific American, Black, Latina/o, Indigenous/Native American, Multiracial, Lesbian, Gay, Bisexual, and/or Transgender); building inclusive communities based on our individual and organizational diversity; and creating positive social change through leadership in our communities and campus-wide.

Off-Campus Housing Services

1110 Stamp Student Union
301-314-3645
www.och.umd.edu

Off-Campus Housing Services maintains up-to-date computerized listings of various rental housing options (both vacant and to share). Area maps, apartment directories, transportation information and resources about living off campus are available in the office and on-line.

Adele H. Stamp Student Union - Center for Campus Life

3100 Stamp Student Union
301-314-DESK
www.union.umd.edu

The Adele H. Stamp Student Union - Center for Campus Life is the university's "community center." More than 25,000 students, faculty, staff members, and campus guests visit the Stamp daily to take advantage of its services, programs, and facilities. Our mission is to create and sustain a student-centered environment that promotes academic success and personal development; serves as a safe and inviting campus center; and is characterized by a strong commitment to multiculturalism, excellence, and a positive work environment.

The Stamp offers lounge space, a variety of information services, recreation and leisure activities, student-sponsored programs, visual arts, retail outlets, and more than 40,000 square feet of reservable space.

Information Services

- Information Center located on the first floor, 301-314-DESK
- Bulletin boards located throughout the building
- Display showcases located throughout the building

Recreation and Leisure

- Hoff Movie Theatre, 301-314-HOFF
- Terp Zone, including full-service bowling lanes, "Lunar Bowling," billiard tables, video games, and three big-screen TVs, 301-314-BOWL

Student-Sponsored Programs

- Student Entertainment Events (SEE), a student-directed program board whose committees plan games, tournaments, concerts, lectures, outdoor recreation trips, 301-314-8359
- Student Tutorial Academic Referral Center (STAR Center), offering tutor listings and test files, 301-314-8359
- Graduate Student Government

Art and Learning Center, 301-314-ARTS

- Art and Learning Center, a visual arts work and teaching center, offering mini-courses and arts services
- Union Art Gallery, located on the first floor

Food and Retail Outlets

- Chevy Chase Bank, 301-864-8722
- University Book Center (basement level), 301-314-BOOK
- Food Services: Maryland Food Co-op (301-314-8089), Saladworks (301-314-0947), Taco Bell (301-314-6569), McDonald's (301-314-1489), Adele's Restaurant (301-314-8022), Coffee Bar (301-314-CAFE), Panda Express (301-314-6111), Sbarros (301-314-4105), Steak Escape (301-314-9665), Sushi by Pandy (301-314-6111), Chick-Fil-A (301-314-6568), Subway (301-266-7827)
- Mailboxes Etc., a full-service postal and packaging facility, 301-314-9982
- Ticket Office, offering campus performance tickets, and a full Ticket Master Outlet, 301-314-TKTS
- Union Shop 301-314-7467, featuring snacks, sodas, newspapers, and magazines

Reservable Space

The Stamp offers meeting rooms that accommodate groups from 8 to 1,000 people. For reservations, or catering information, contact the Stamp Reservation Office, 301-314-8488.

Adele H. Stamp Student Union - Center for Campus Life Hours

The Stamp is open Monday through Thursday, 7 a.m. to midnight; Friday, 7 a.m. to 1:30 a.m.;

Saturday, 8 a.m. to 1:30 a.m., and Sunday, 11 a.m. to midnight.

See other Adele H. Stamp Student Union - Center for Campus Life Hours offices and services elsewhere in Chapter 3

Community Service-Learning Office
Campus Programs
Multicultural Involvement and Community Advocacy
Off-Campus Housing Services
Religious Programs

4. Registration, Academic Requirements, and Regulations

Degree Information

Degree Requirements

The requirements for graduation vary according to the character of work in the different colleges, schools, departments and academic units. It is the responsibility of the colleges, schools, departments and other academic units to establish and publish clearly defined degree requirements. Responsibility for knowing and meeting all degree requirements for graduation in any curriculum rests with the student. Specific degree requirements are listed in this catalog under the college and/or department as appropriate.

Each student should check with the proper academic authorities no later than the close of the junior year to ascertain his or her standing with respect to advancement toward a degree. For this purpose, each student should be sure to review their semester grades and unofficial transcript on the MyUM website (www.my.umd.edu) at the close of each semester or request a semester grade report.

1. Residency requirement - Final 30-Hour Rule

> a. All candidates for University of Maryland, College Park, degrees should plan to take their final 30 credits in residence since the advanced work of their major study normally occurs in the last year of the undergraduate program. Included in these 30 semester hours will be a minimum of 15 semester hours in courses numbered 300 or above, including at least 12 semester hours required in the major field (in curricula requiring such concentrations).
>
> b. A student who at the time of graduation will have completed 30 credit hours in residence at the University of Maryland, College Park, may, under unusual circumstances, be permitted to take a maximum of 8 of the final 30 credits of record, comprising no more than two courses, at another institution. A student who has completed 75 credit hours in residence at the University, may, under unusual circumstances, be permitted to take a maximum of 16 of the final 30 credits of record, comprising no more than 4 courses, at another institution. In such cases, written permission must be obtained in advance from the dean and chair/director of the academic unit from which the student expects to graduate. Any course taken at another institution and intended to satisfy a specific major requirement at the University of Maryland must be approved as an equivalent course by the chair/director and the dean. Normally, no more than two courses required by the major, including major and supporting courses, will be approved. Exceptions beyond the articulated maximum credits and/or courses will be made only under highly unusual circumstances; requests for an exception must be made through the Dean's office to the Office of the Senior Vice President for Academic Affairs.
>
> c. For students in the combined three-year, preprofessional programs, the final 30 hours of the 90-hour program at the University of Maryland, College Park, must be taken in residence.

2. Credit Requirements

While several undergraduate curricula require more than 120 credits, no baccalaureate curriculum requires fewer than 120. No baccalaureate will be awarded in instances in which fewer than 120 credit hours have been earned. It is the responsibility of each student to familiarize himself or herself with the requirements of specific curricula. The student is urged to seek advice on these matters from the departments, colleges, or the Office of the Dean for Office of Undergraduate Studies. To earn a baccalaureate from the University of Maryland, College Park, a minimum of 30 credits must be taken in residence.

3. Enrollment in Majors

A student who is eligible to remain at the University of Maryland, College Park, may transfer among curricula, colleges, or other academic units except where limitations on enrollments have been approved. By the time they complete 60 credits, students are expected to declare a degree-granting major. Students must be enrolled in the major program from which they plan to graduate, when registering for the final 15 hours of the baccalaureate program. This requirement also applies to the third year of the combined, pre-professional degree programs. Also see information on double majors and double degrees elsewhere in this chapter.

4. Grade Point Average
A minimum cumulative 2.0 grade point average is required for graduation in all curricula.

5. Completion of Interrupted Degree
Students whose registration at the University of Maryland, College Park, has lapsed for more than 10 years shall be required to complete a minimum of 15 credit hours at College Park after their return to campus in order to earn a baccalaureate degree.

Recommendations about courses needed to satisfy the remaining degree requirements will be made at the department level, with approval of the Dean's Office required. The reason for requiring these credits is that many fields change sufficiently in 10 years to require that students take current courses if they are to be awarded a current degree. Exceptions to the requirement for a minimum of 15 credits earned at College Park upon return to the campus can be recommended by the Deans for approval in the Office of the Vice President for Academic Affairs.

Academic Success-Degree Completion Policy, Student

University of Maryland policy stipulates that full-time degree seeking students are expected to complete their undergraduate degree program in four years. To meet this expectation, students must plan carefully in consultation with an academic advisor; complete 30 credits each year (which is usually accomplished through a course load of 14 to 16 credits per semester); satisfy general education, prerequisite and other course requirements with acceptable grades in a timely manner; and meet the benchmarks. Academic units provide the benchmarks and sample templates of multi-semester plans leading to four-year graduation. Students are required to map out individualized four-year plans, consistent with these guidelines and benchmarks, and are responsible for updating them as circumstances change. Students who do not meet benchmarks are required to select a more suitable major. Students who change majors must submit a realistic graduation plan to the academic unit of the new major for approval. Any student who completes ten semesters or 130 credits without completing a degree is subject to mandatory advising prior to registration for any subsequent semester. Students with exceptional circumstances or those who are enrolled in special programs are required to develop a modified graduation plan that is appropriate to their situations. In all cases, students are responsible for meeting progress expectations and benchmarks required for their degree programs.

Every student should contact his or her college or department advisor to obtain the relevant materials for developing a four-year graduation plan and required benchmarks.

For information about this policy visit: www.ugst.umd.edu/academicsuccess.html and www.ugst.umd.edu/faqs-successpolicy.html

Minors

Minors afford students the opportunity to pursue a limited but structured concentration in a coherent field of study outside their major. The minor may be a truncated version of a major or a distinctive intellectual subset of a discipline. Minors are not offered in every field of study. Students should inquire with departments for current availability of minors or see individual listings on this site.

The structures of minors vary in detail, but, with rare exceptions, they all require no fewer than 15 and no more than 24 credits with at least 9 credits in upper division courses (300 level or above). No more than six credits (or two courses) may be applied to satisfy both the requirements of a minor and a major program. No course may be used to satisfy the requirements of more than one minor. All courses taken for a minor must be completed with a minimum grade of C.

To ensure appropriate academic advising, students who wish to pursue a minor should inform both the college responsible for their major and the unit offering the minor as early as possible, but in no case later than one full academic year before the expected date of graduation. When a student has completed all requirements for the minor, the unit offering the minor shall notify the student's college, which verifies that the student has met all requirements and officially notifies the Registrar's Office. The completion of a minor is posted on the student's official transcript only when the student completes all requirements for the bachelor's degree.

In February 2004, the University Senate voted to phase out academic citations and replace them with minors. Students pursuing an academic citation should contact the respective department or program for information on this conversion process.

Second Majors and Second Degrees

Second majors

A student who wishes to complete a second major concurrently with his or her primary major of record must obtain written permission in advance from the appropriate departments or programs and colleges. As early as possible, but in no case later than one full academic year before the expected date of graduation, the student must file with the department or programs involved and with the appropriate deans, formal programs showing the courses to be offered to meet requirements in each of the majors and supporting areas as well as those of the college and general education programs. A student who wishes to add a Limited Enrollment Program as a second major must do so at the earliest possible opportunity to assure that specific credit and GPA requirements can be met. In order to obtain approval, students must complete all of the requirements specified for both the primary and secondary major. Courses taken for one major may be counted as appropriate as part of the degree requirements for the general education programs. If two colleges are involved in the double major program, the student must designate which college will be responsible for the maintenance of records and certification of general education requirements. Final approval of a double major program must be obtained from each of the appropriate departments and college(s).

Second Degrees Taken Simultaneously

A student who wishes to receive two bachelor's degrees simultaneously must satisfactorily complete the regularly prescribed requirements of both degree programs and a minimum of 150 credits (180 credits if one of the degrees is in Special Education). At least 18 of the credits applied to one degree must be in course work not applied to the requirements of the other degree program. As early as possible, but in no case later than one full academic year before the expected date of graduation, the student must file with the department or programs involved, as well as with the appropriate deans, formal programs showing the courses to be offered to meet the major, supporting area, college, and general education programs. If two colleges are involved in the double degree program, the student must designate which college will be responsible for the maintenance of records and certification of general education requirements. Final approval of a double degree program must be obtained from each of the appropriate departments and college(s).

Second Degrees Taken Sequentially

A student who has completed the requirements for, and has received one baccalaureate and who wishes to earn a second degree from the university must satisfactorily complete all of the prescribed requirements for the second degree and enough additional credits so that the total, including all applicable credits earned at the university or elsewhere, is at least 150 credits (180 credits if one of the degrees is in Special Education). At least 18 of the credits applied to one degree must be in course work not applied to the requirements of the other degree program. In no case will a second baccalaureate be awarded to a student who has not completed a minimum of 30 credits in residence at the university.

Post-Baccalaureate Second Degree

A student who has completed a bachelor's degree at another accredited or recognized college or university and wishes to earn a second degree, must satisfy all current degree requirements, including General Education requirements. A course by course evaluation of the student's prior collegiate work will be undertaken to determine which requirements have been satisfied by prior coursework. In no case, will a second baccalaureate be awarded to a student who has not completed a minimum of 30 credits in residence at the university.

Combined Bachelor's/Master's Programs

In a combined bachelor's/master's program, some graduate level courses initially taken for undergraduate credit may also be applied towards the graduate credit requirements for a master's degree program at the University of Maryland. A bachelor's/master's program may be developed for an individual student, or it may be a structured program.

Individual Student Bachelor's/Master's Program: A program may be developed by an individual student in consultation with his/her academic advisor. Such a program is available only to students whose academic performance is exceptional. It is to be developed according to the individual career interests and goals of the student and should be an integrated learning experience rather than merely the completion of a certain number of graduate and undergraduate credits. The program requires the approval of the directors of both the undergraduate and the graduate programs involved and of the Dean for Office of Undergraduate Studies and the Dean of the Graduate School. Normally, no more than nine credits of graduate courses applied to the bachelor's degree may be counted also for graduate credit in an individual student program. Courses to be double-counted must be at the 600 level or above and must be passed with at least a 'B' grade. Individual study courses, internships, or courses given credit by examination are not eligible. The credits to be double-counted will be designated as applicable to the graduate program after the student receives the bachelor's degree and matriculates in the Graduate School. This designation will be canceled if the student withdraws from the graduate program before completing the master's degree.

Structured Bachelor's/Master's Program: A structured bachelor's/ master's program is an articulated curriculum combining an existing undergraduate program and an existing master's program at the University of Maryland, offered by the same or by different departments. Such a program is to be designed for students whose academic performance is exceptional and should be an integrated learning experience rather than merely the completion of a certain number of graduate and undergraduate credits. A proposal for such a program should be submitted by the college(s) housing the academic programs concerned and requires the approval of the Graduate Council, the Graduate Dean, the Senate PCC Committee, and the Provost.

Necessary features of a structured bachelor's/master's program include the following:

> a. There must be specific requirements for admission to the combined program that speak to the exceptional performance of the students to be admitted. At a minimum, students accepted for the program must be clearly admissible to the graduate program portion.
>
> b. The program should be designed so as not to unduly delay the student's receipt of their bachelor's degrees. Taking graduate credits should not unduly limit the breadth of the student's experience through premature specialization.
>
> c. All requirements of the bachelor's program and of the master's program must be completed to receive the two degrees. Where appropriate, graduate courses taken while an undergraduate may substitute for courses required in the undergraduate major program.
>
> d. The student may be offered deferred admission to the graduate school at the end of the Junior year program, subject to completion of the senior year program in a timely fashion and with a specified level of achievement. Formal admission to the graduate school will require completion of all requirements for the bachelor's degree.

e. The credits to be double-counted will be designated as applicable to the graduate program after the student receives the bachelor's degree and matriculates in the Graduate School. This designation will be canceled if the student withdraws from the graduate program before completing the master's degree.

A structured bachelor's/master's program may normally include up to nine credits of graduate level courses (600 level and above) that are counted both for the bachelor's program and the master'ss program. More than nine double-counted credits may be allowed if both of the following conditions are satisfied.

a. The additional graduate credits applied to the undergraduate program do not unduly limit the breadth of the student's experience through premature specialization. This condition may be satisfied, for example, if the graduate credits substitute for courses required in the undergraduate program that would have been taken in any case, but at a less advanced level.

b. The master's program requires substantially more than thirty credits. This condition will be deemed to be satisfied if the combined program, with double-counting, still requires 150 or more credit hours to complete.

Academic Advising

Academic advising is an integral part of each student's educational experience and it takes many forms. Academic advising is a shared responsibility between the student and the advisor. For more information visit www.advising.umd.edu. Together with a student, an academic advisor can:

Monitor students' progress in their major.

Provide information on academic requirements needed for graduation:

- Discuss how a course of study fits a particular academic or career interest.
- Answer questions concerning a specific academic concern, such as problems with a particular class.
- Assist students in developing an academic and career plan.
- Inform students about possible scholarships or fellowships and how to apply for them.
- Guide students through the registration process, including providing information on various registration blocks and what needs to be done to remove them.

Help students plan for future graduate study or career:

- Discuss how an academic major can prepare a student for his/her career, and what career options are available.
- Refer students to the Career Center which provides career counseling as well as workshops on various careers,on writing resumes, preparing for job interviews, etc.
- Inform students about graduate school requirements and application procedures.
- Inform students about internship opportunities and how they can possibly receive credit for them.
- Provide information on study abroad programs that might enrich a student's academic experience as well as enhance their resume.

Serve as a campus resource:

- Refer students to various academic support units that provide tutoring or workshops on study skills, time management, stress management, etc.
- Recommend that students seek counseling for stress, addictions, trauma that may be affecting their academic work.
- Inform students with physical and learning disabilities of the support available to them.
- Encourage students to get involved on campus via social, political, academic, ethnic/cultural, sport and/or recreational student organizations and activities.

Some advisors can provide information on all of the above. Others specialize in a particular topic or area of concern. For example, a college/department may have a specific career advisor or study abroad coordinator. Furthermore, some advisors work with specific populations, i.e. returning students, athletes, students with physical or learning disabilities, students of color, etc.

When requesting to meet with an advisor, specify what topics you wish to discuss to ensure that you are directed to the appropriate individual.

Registering for Classes

Office of the Registrar
Mitchell Building, 301-314-8240
www.testudo.umd.edu

To attend classes at the University of Maryland, College Park, it is necessary to process an official registration. Specific registration dates and instructions are printed in the Registration Guide and on the MyUM website, www.my.umd.edu. The Registration Guide is issued for the spring and fall. The Schedule of Classes is issued for the summer sessions. Winter Term information is printed in the Fall Registration Guide, and on the MyUM web site.

Newly admitted students are invited, and strongly encouraged to attend an orientation session (see chapter 3 for Orientation information). Advising and course registration are part of the orientation process. All newly admitted students must meet with an advisor prior to registration. Additionally, newly admitted freshmen and transfer students are required to provide proof of immunization for measles, rubella, mumps and tetanus/diphtheria. Additionally,Maryland law requires resident hall students to either provide proof of vaccination against meningococcal disease or seek an exemption from this requirement.

Registration Process: Currently enrolled students are invited to early registration by appointment. Registration appointments for the fall semester begin in April, and appointments for the spring semester begin in late October. Registration can be processed on the MyUM (my.umd.edu) web site or in person. Open registration follows early registration, and continues up to the first day of classes. During this time students may make schedule adjustments or process an original registration. The schedule adjustment period begins on the first day of classes. All registration transactions, either on-line or in person, are final unless a student processes a cancellation of registration.

Schedule Adjustment and Drop Period

Schedule Adjustment: The schedule adjustment period is the first 10 days of classes for the fall and spring semesters, the first 5 days of classes for Summer Sessions I and II, and the first 3 days of classes for Winter Term and 3-week accelerated Summer courses. Courses may be added, when space is available, during the schedule adjustment period, and will appear on the students permanent record along with other courses previously listed. Courses dropped during this period will not appear on the student's permanent record.

Departments may identify courses or sections of courses (with the approval of the Office of the Senior Vice President for Academic Affairs), which after the first five days of the schedule adjustment period in Spring and Fall semesters, shall require faculty or departmental approval for students to add.

- During the schedule adjustment period full-time undergraduates may drop or add courses, or change sections or credit level without financial penalty provided they remain full-time students (registered for 12 or more credits). Consult the Registration Guide for information and penalties associated with changing from full-time to part-time.

- Part-time undergraduates (fewer than 12 credits) may also add, drop and change sections, as well as change credit level, but they should consult the deadline section in the Registration Guide to avoid incurring additional charges.
- Grading Method (including pass-fail) may be changed only during the schedule adjustment period.
- In the case of students who are advised in the Division of Letters and Sciences when Dean's approval is required, the Dean for Office of Undergraduate Studies shall assume the responsibilities normally delegated to the Dean.

After Schedule Adjustment

- Courses may not be added without special permission of the department and the dean of the academic unit in which the student is enrolled.
- All courses for which the student is enrolled shall remain as a part of the student's permanent record. The student's status shall be considered full-time if the number of credit hours enrolled at this time is 12 or more.
- An official class list for each course being offered is issued to the appropriate department by the Office of the Registrar. Electronic rosters are provided to all faculty with email accounts. Students are not permitted to attend a class if their names do not appear on the class list. Instructors must report discrepancies to the Office of the Registrar.

Drop Period

The drop period for undergraduate students will begin at the close of the schedule adjustment period and terminate at the end of the tenth week of classes for the fall and spring semesters, and at a comparable time for summer sessions and Winter Term. Consult the Registration Guide or Summer Schedule of Classes for dates.

During this period a student may drop a maximum of four credits. However, if the course carries more than four credits, the student may drop the entire course, or in the case of a variable credit course, reduce the credit level by up to four credits. Drops during this period will be recorded on the student's permanent record with a notation of W and will be considered to represent a single enrollment (one of two possible) in the course. This mark will not be used in the computation of a student's cumulative grade point average.

Credit Hours and Maximum Semester Credits

No baccalaureate curriculum requires fewer than 120 semester hours. The semester hour, which is the unit of credit, is the equivalent of a subject pursued one period a week for one semester. Two or three hours of laboratory or field work are equivalent to one lecture or recitation period.

In order for undergraduate students to complete most curricula in four academic years, their semester load must range from 12 to 19 hours (30 to 36 hours each year) toward the degree. By policy, undergraduates may not exceed the following maximum credit loads without the prior approval of their Dean: 20 credits in a 15 week semester; 8 credits in a 6 week summer term, or 4 credits in an accelerated 3 week term.

Cancellation of Registration

Students who register and later decide not to attend the University must cancel their registration with the Office of the Registrar prior to the official first day of classes. Failure to cancel registration will result in a financial obligation to the University of Maryland even though a student does not attend class. The University reserves the right to cancel registration for students who fail to meet their financial obligations.

Concurrent Undergraduate-Graduate Registration

An undergraduate degree seeking student at the University of Maryland may, with the approval of his or her Dean, of the department and the instructor offering the course, and of the Graduate School, register for graduate courses (600 level and above) that will be recorded as *for graduate credit only* and that may be applied towards an advanced degree at this university or elsewhere. Students eligible for this option normally will have achieved Junior standing, will have a GPA of at least 3.0, and will have successfully completed the prerequisite courses with a grade of 'B' or better. The student must submit a plan of study that shows that taking graduate courses will not unduly delay completion of requirements for the bachelor's degree. The total of graduate and undergraduate credits attempted in any semester may not be more than eighteen. The graduate credits so earned will not count towards any of the requirements for the Baccalaureate degree. A maximum of twelve credits may be taken for graduate credit by a student while enrolled as an undergraduate.

Undergraduate Credit for Graduate Level Courses

Subject to requirements determined by the graduate faculty of the department or program offering the course, undergraduate degree-seeking students may register for graduate-level courses, i.e., those numbered from 600 to 898, with the exception of 799, for undergraduate credit. The student must obtain the prior approval of the department and instructor offering the course.

Students eligible for this option normally will have achieved Junior standing, will have a GPA of at least 3.0, and will have successfully completed the prerequisite courses with a grade of 'B' or better.

Enrollment in a graduate-level course does not in any way imply subsequent departmental or graduate school approval for admission into a graduate program, nor may the course be used as credit for a graduate degree at the University of Maryland.

Withdrawal and Leave of Absence

Students admitted to the University of Maryland are expected to make regular and consistent progress towards the completion of their degree. However, the University understands that in exceptional circumstances a student may find it necessary to completely withdraw from all classes. The University considers such an interruption to be very serious as it delays normal progress towards the degree. Students should not withdraw for frivolous reasons or to avoid the consequences of ignoring their academic responsibilities. Any student considering withdrawal is strongly encouraged to meet with his or her academic college advisor before leaving the University.

Potential Implications: Withdrawing or taking a leave of absence from the University may have serious implications for international students, students receiving financial aid or students residing in on-campus housing. Students are advised to contact the appropriate offices before finalizing withdrawal or leave of absence plans.

Student Financial Services Office:	1135 Lee Building, 301-314-9000
Department of Resident Life:	2100 Annapolis Hall, 301-314-2100
International Education Services:	3117 Mitchell Building, 301-314-7740

Withdrawal: A withdrawal is available anytime between the first and last day of classes. Students must submit written notice of withdrawal to the Office of the Registrar no later than the last day of classes. A student's return to the University is contingent upon the conditions outlined in *Return to the University* below.

Leave of Absence: A leave of absence is a type of withdrawal and is available for students wishing to take time away from the University with the intention of returning the following semester. The leave of absence status is especially helpful for recipients of federal financial aid because they are not considered to be withdrawn provided they do return and complete the following semester. Students may apply for a leave of absence only during the last 60 days of the semester. A student's return to the University is contingent upon the conditions outlined in *Return to the University* below.

Return to the University: Normally, a student may withdraw or take a leave of absence from the University only once during matriculation as an undergraduate. Students who find it necessary to leave the University are required to petition the Faculty Review Board in order to return. Students who have earned a minimum 2.0 cumulative GPA, with no previous withdrawal or leave of absence, are exempt from this requirement. Students who withdraw or take a leave of absence while on academic probation, or those returning from dismissal, are always required to petition the Faculty Review Board. Students are also required to complete a Reinstatement Advising Meeting with their academic college advising office before the petition will be considered by the Faculty Review Board.

Additional Withdrawal/Leave of Absence Information: The effective date of withdrawal or leave of absence for the purposes of refunds is the date that the notice is received by the Office of the Registrar. Notation of withdrawal/leave of absence and the effective date will be posted to the student's academic record. Instructors and college offices will be notified of all withdrawn students. The deadline date for submitting the withdrawal for each semester is the last day of classes. Students should contact the Office of Undergraduate Admissions for reenrollment information.

The repeat policy will not apply to courses taken during the academic semester from which the student is officially withdrawn.

Military Call-ups: It is the intent of the University of Maryland, College Park, to facilitate the withdrawal or change in registration and the reenrollment of students who are called to active military duty during the semester. The student (or a representative) should take a copy of the military orders to the Office of the Registrar and process a withdrawal or change in registration papers. Detailed information about this process may be obtained from the Office of the Registrar. Withdrawal for active military service will have no effect on any subsequent request to withdraw from the University.

Courses Taken at Other Institutions

Courses taken at another institution may not be credited toward a degree program without prior approval of the dean of the college from which the student expects to earn a degree. Eligible students may enroll in courses at other Universities via the University System of Maryland's Inter Institutional Registration Program or the Consortium of Universities of the Washington Metropolitan Area.

Consortium of Universities of the Washington Metropolitan Area:

The Consortium of Universities of the Washington Metropolitan Area consists of American University, The Catholic University of America, Corcoran College of Art and Design, Gallaudet University, Georgetown University, George Mason University, The George Washington University, Howard University, Marymount University, Joint Military Intelligence College, National Defense Intelligence College, Southeastern University, Trinity University, University of the District of Columbia and the University of Maryland College Park. Students enrolled in these institutions are able to attend certain classes at the other campuses and have the credit considered as resident credit at their home institutions. Comparable courses offered at University of Maryland may not be taken through the Consortium. The intention is to allow students to take an occasional course to augment a program rather than to develop an individual program. Payment of tuition for courses will be made to the student's home campus however, special fees may be assessed by the host institution.

Currently registered, degree seeking University of Maryland students with at least junior standing may participate in the Consortium program according to the stipulations listed in the current edition of the Registration Guide. Enrollment in courses is available only on a space-available basis. Visiting students are expected to meet prerequisites or other criteria set by the host institution and comply with the host institution's registration procedures and deadlines.

Golden ID students are not eligible to enroll in courses through the Consortium with waiver of fees. University of Maryland students may only enroll in courses offered on the campus of the host institution. Students interested in additional information about the Consortium program should review the current edition of the Registration Guide or contact the Consortium Coordinator on the first floor of the Mitchell Building.

University System of Maryland Inter-Institutional Registration Program:

Undergraduate students have the opportunity to take courses at certain University System of Maryland Institutions to augment their degree program at University of Maryland College Park under the Inter-Institutional Registration Program. Participating institutions include Bowie State University, Coppin State University, Frostburg State University, Salisbury State University, Towson University, University of Baltimore, University of Maryland at Baltimore, University of Maryland, Baltimore County, University of Maryland College Park and University of Maryland Eastern Shore. University of Maryland College Park students may not enroll in courses at the University of Maryland University College through this program. Currently registered, degree seeking University of Maryland students with at least sophomore standing may enroll in courses and have that credit considered as resident credit at their home institution. Enrollment in courses is available only on a space available basis and visiting students are expected to meet prerequisites or other criteria set by the host institution. Payment of tuition for courses will be made to the student's home campus however special fees may be assessed by the host institution. Students interested in additional information about the Inter-Institutional Registration program should review the current edition of the Registration Guide or contact the Consortium Coordinator on the first floor of the Mitchell Building.

Student ID Numbers

University of Maryland assigns all students a unique nine-digit identification number called the U ID Number. This number is used as a student identifier for most university transactions. Students are also required to provide their Social Security Number, which is used for a limited number of purposes that are required by law or business necessity. See www.president.umd.edu/policies/docs/vi-2600A.pdf for the University of Maryland Policy on the Collection, Use and Protection of ID Numbers and a list of currently approved uses.

Use of Email for Official Communication

The University has adopted email as the primary means for sending official communications to students. Academic advisors, faculty, and campus administrative offices use email to convey important information and time-sensitive notices. All enrolled students are provided a University email address. Students are responsible for keeping their email address up to date or for forwarding email to another address. Failure to check email, errors in forwarding email, and returned email due to *maill mailbox full* or *user unknown* will not excuse a student from missing announcements or deadlines.

Change of Address

Students are expected to notify the Office of the Registrar of any change in their local, permanent or e-mail address. Use the internet to keep address information current and accurate. Change of address forms are available at the following places:

MyUM web site: www.my.umd.edu
Office of the Bursar, Room 1115 or 1135, Lee Building
Student Services Counter, first floor, Mitchell Building

Identification Cards

The photo ID card is issued at the time the student first registers for classes. This card is to be used for the entire duration of enrollment. Additionally, students who have food service contracts will use this photo identification card. Contact Dining Services directly for further information.

The photo identification card can be used by students to withdraw books from the libraries, for admission to most athletic, social, and cultural events, and as a general form of identification on campus.

There is a replacement charge of $20 for lost photo identification cards. Questions concerning the identification card system should be addressed to the Office of the Registrar.

Veterans Benefits

Students attending the university under the Veterans Education Assistance Act (Title 38, U.S. Code) may receive assistance and enrollment certification at the Veterans Certification Office, in the Office of the Registrar, first floor,Mitchell Building. Consult the Registration Guide for further information.

Classification of Students

Official classifications of undergraduate students are based on earned credits as follows: freshman, 1-29 semester hours; sophomore, 30-59; junior, 60-89; and senior, 90 to at least 120.

Academic Records and Regulations

The Office of the Registrar, located on the first floor of the Mitchell Building is responsible for maintaining student records and issuing official transcripts.

Marking System

The following symbols are used on the student's permanent record for all courses in which he or she is enrolled after the initial registration and schedule adjustment period: A+, A, A-, B+, B, B-, C+, C, C-, D+, D, D-, F, XF, I, P, S, and W. These marks remain as part of the student's permanent record and may be changed only by the original instructor on certification, approved by the department chair and the dean, that an actual mistake was made in determining or recording the grade.

- A+, A, A- denotes excellent mastery of the subject and outstanding scholarship. In computations of cumulative or semester averages, a mark of A+, A, A- will be assigned a value of 4 quality points per credit hour.
- B+, B, B- denotes good mastery of the subject and good scholarship. A mark of B+, B, B- is assigned a value of 3 quality points per credit hour.
- C+, C, C- denotes acceptable mastery of the subject. A mark of C+, C, C- is assigned a value of 2 quality points per credit hour.
- D+, D, D- denotes borderline understanding of the subject. It denotes marginal performance, and it does not represent satisfactory progress toward a degree. A mark of D+, D, D- is assigned a value of 1 quality point per credit hour.
- F denotes failure to understand the subject and unsatisfactory performance. A mark of F is assigned a value of 0 quality points per credit hour.
- XF- denotes failure due to academic dishonesty.
- S is a department option mark that may be used to denote satisfactory performance by a student in progressing thesis projects, orientation courses, practice teaching, and the like. In computation of cumulative averages a mark of S will not be included.
- W is used to indicate withdrawal from a course in which the student was enrolled at the end of the schedule adjustment period. For information and completeness, the mark of W is placed on the student's permanent record by the Office of the Registrar. The instructor will be notified that the student has withdrawn from the course. This mark is not used in any computation of quality points or cumulative average totals at the end of the semester.
- Audit - A student may register to audit a course or courses which have been designated as available under the audit option and in which space is available. The notation AUD will be placed on the transcript for each course audited. A notation to the effect that this symbol does not imply attendance or any other effort in the course will be included on the transcript in the explanation of the grading system.
- Pass-Fail - The mark of P is a student option mark, equivalent to A+, A, A-, B+, B, B-, C+, C, C-, D+, D or D-. The student must inform the Office of the Registrar of the selection of this option by the end of the schedule adjustment period.

Additional Record Notations

In addition to the above marks, there are provisions for other record or transcript notations that may be used based on university policy and individual circumstances.

Duplicate course: Used to indicate two courses with the same course content. The second course is counted in the cumulative totals earned; both courses are counted in the cumulative attempted credit and in the calculation of grade point average.

Excluded Credit (Excl Crd): Excluded credit is noted when Academic Clemency has been granted.

Incompletes: The mark of I is an exceptional mark that is an instructor option. It is given only to a student whose work in a course has been qualitatively satisfactory, when, because of illness or other circumstances beyond the student's control, he or she has been unable to complete some small portion of the work of the course. In no case will the mark I be recorded for a student who has not completed the major portion of the work of the course.

1. This Incomplete Contract form must be submitted to the dean of the college offering the course within six weeks after the grade submission deadline (if a grade hasn't already been submitted). If any Incomplete Contract isn't completed within the six week period, the instructor will convert the I to the appropriate grade.

2. The student will remove the 'I' by completing work assigned by the instructor; it is the student's responsibility to request arrangements for the completion of the work. The work must be completed by the time stipulated in the contract, usually by the end of the next semester, but in any event, no later than one year. If the remaining work for the course as defined by the contract is not completed on schedule, the instructor will convert the I to the grade indicated by the contract.

3. Exceptions to the stated deadline may be granted by the student's dean (in negotiation with the faculty member or the faculty members dean) upon the written request of the student if circumstances warrant further delay.

4. If the instructor is unavailable, the department chair, upon request of the student will make appropriate arrangements for the student to complete the course requirements.

5. It is the responsibility of the instructor or department chair concerned to submit the grade promptly upon completion of the conditions of the Incomplete Contract.

6. The I cannot be removed through re-registration for the course or through credit by examination. An I mark is not used in the computation of quality points or cumulative grade point averages.

Non-applicable (Non-Appl): In all cases of transfer from one college to another at the University of Maryland, College Park, the dean of the receiving college, with the approval of the student, shall indicate which courses, if any, in the student's previous academic program are not applicable to his or her new program, and shall notify the Office of the Registrar of the adjustments that are to be made in determining the student's progress toward a degree. Deletions may occur both in credits attempted and correspondingly in credits earned. This evaluation shall be made upon the students initial entry into a new program, not thereafter. If a student transfers from one program to another, his or her record evaluation shall be made by the dean in the same way as if he or she were transferring colleges. If the student subsequently transfers to a third college, the dean of the third college shall make a similar initial adjustment; courses marked nonapplicable by the second dean may become applicable in the third program.

Pass-Fail Policy

Pass-Fail Policy: The following Pass-Fail policy was approved by the Board of Regents for implementation beginning with the Spring 1989 semester:

1. To register for a course under the pass-fail option, an undergraduate must have completed 30 or more credit hours of college credit with a GPA of at least 2.0. At least 15 of these credit hours must have been completed at the University of Maryland, College Park with a University of Maryland GPA of at least 2.0.

2. Courses for which this option applies must be electives in the student's program. The courses may not be college, major, field of concentration, or general education program requirements.

3. Only one course per semester may be registered for under the pass-fail option.

4. No more than 12 semester hours of credit may be taken under the pass-fail option during a student's college career.

5. Students may not choose this option when re-registering for a course.

6. When registering under the pass-fail option, a course that is passed will count as hours in the student's record but will not be computed in the grade point average. A course that is failed will appear on the student's record and will be computed both in the overall average and the semester average.

7. Students registering for a course under the pass-fail option are required to complete all regular course requirements. Their work will be evaluated by the instructor by the normal procedure for letter grades. The instructor will submit the normal grade. The grades A+, A, A-, B+, B, B-, C+, C, C-, D+, D or D- will automatically be converted by the Office of the Registrar to the grade P on the student's permanent record. The grade F will remain as given. The choice of grading option may be changed only during the schedule adjustment period for courses in which the student is currently registered.

Incompletes

The mark of 'I' is an exceptional mark that is an instructor option. It is given only to a student whose work in a course has been qualitatively satisfactory, when, because of illness or other circumstances beyond the student's control, he or she has been unable to complete some small portion of the work of the course. In no case will the mark I be recorded for a student who has not completed the major portion of the work of the course.

1. This Incomplete Contract form must be submitted to the dean of the college offering the course within six weeks after the grade submission deadline (if a grade hasn't already been submitted). If any Incomplete Contract isn't completed within the six week period, the instructor will convert the I to the appropriate grade.

2. The student will remove the 'I' by completing work assigned by the instructor; it is the student's responsibility to request arrangements for the completion of the work. The work must be completed by the time stipulated in the contract, usually by the end of the next semester, but in any event, no later than one year. If the remaining work for the course as defined by the contract is not completed on schedule, the instructor will convert the I to the grade indicated by the contract.

3. Exceptions to the stated deadline may be granted by the student's dean (in negotiation with the faculty member or the faculty members dean) upon the written request of the student if circumstances warrant further delay.

4. If the instructor is unavailable, the department chair, upon request of the student will make appropriate arrangements for the student to complete the course requirements.

5. It is the responsibility of the instructor or department chair concerned to submit the grade promptly upon completion of the conditions of the Incomplete Contract.

6. The 'I' cannot be removed through re-registration for the course or through credit by examination. An 'I' mark is not used in the computation of quality points or cumulative grade point averages.

Grade Point Average, Computation of

GPA is computed by dividing the total number of quality points accumulated in courses for which a grade of A+, A, A-, B+, B, B-, C+, C, C-, D+, D, D-, or F has been assigned by the total number of credits attempted in those courses. Courses for which a mark of P, S, I, NGR or W has been assigned are not included in computing the GPA. Each letter grade has a numerical value: A+, A, A- = 4; B+, B, B- = 3; C+, C, C- = 2; D+, D, D- = 1; F = 0. Multiplying this value by the number of credits for a particular course gives the number of quality points earned for that course.

See Repeat Policy to determine the effect of repeated courses in the calculation of GPA.

Repeat Policy

The following Campus Repeat Policy applies to ALL courses that may not be repeated for additional credit.

1. The following students are required to follow the new repeat policy:

    a. All new freshmen who began at University of Maryland , College Park Fall 1990 and after.

    b. Transfer students from schools other than Maryland community colleges who began at University of Maryland, College Park, Fall 1990 and after. This includes transfer students from another University of Maryland institution.

2. There is a limit to the number of times a student may repeat a course. Students may have one repeat of any course in which they earned an A+, A, A-, B+, B, B-, C+, C, C-, D+, D, D-, F, P, S, W, NGR or Audit; they cannot be registered (after the schedule adjustment period) for any given course more than twice. A students deans office may grant an exception allowing an additional course repeat. In this case, students must present a plan for successfully completing the course. All attempts *will* be counted toward the total limit for repeatable credits.

***Note**: Students may not choose the Pass-Fail option when re-registering for a course or re-register for a course in which a grade of I has been noted.*

3. Students may repeat no more than 18 credits. Additionally, if a student withdraws from *all* courses during a semester, those courses are not included in this limit.

4. The grade point average will include all attempts at a given course that result in a grade of A+, A, A-, B+, B, B-, C+, C, C-, D+, D, D-, or F. However, to help freshmen and transfer students adjust to the University of Maryland, College Park, the following two exceptions allow for the cumulative GPA to be calculated so that only the higher grade is included:

    a. When the repeated course was taken within the students first semester at University of Maryland, College Park, or

b. When the repeated course was taken within the students first 24 credit hours attempted (including transfer credits) or within the semester during which the student reached the 24th credit hour attempted.

5. Any grade earned in prior attempts of a repeated course will appear on the student's transcript, regardless of whether the grade is dropped from, or included in, the cumulative grade point average.

6. Repeat by transfer: If a student repeats by transfer a course that was taken before or during the semester in which the student reached 24 credits attempted (including transfer credits) and the transfer grade is higher, then the original grade in the course will be excluded from the GPA calculation.

a. If the course was taken after the semester in which the student reached 24 credits attempted, the original grade remains in the GPA calculation.

Repeat Policy Prior to Fall 1990:

The following students follow the *previous* repeat policy:

- Students who began at University of Maryland, College Park, before the Fall 1990 semester (including students who enter University of Maryland, College Park for summer 1990).
- Transfer students who began at a Maryland community college before Fall 1990.
- UMBC College of Engineering students who began before 1990.

The highest grade received in the repeated course is used to calculate the GPA. A student may repeat any course; however no student may be registered for a course more than three times.

If a student repeats a course in which he or she has already earned a mark of A, B, C, D, P, or S, the subsequent attempt shall not increase the total hours earned toward the degree. Only the highest mark will be used in computation of the student's cumulative average. Under unusual circumstances, the student's dean may grant an exception to this policy.

Academic Clemency Policy

Undergraduate students returning to the University of Maryland, College Park in pursuit of their initial baccalaureate degree, after a separation of five calendar years may petition the appropriate dean to have a number of previously earned grades and credits removed from the calculation of their cumulative grade point average. Up to 16 credits and corresponding grades from courses previously completed at theUniversity of Maryland, College Park, will be removed from calculation of the grade point average and will not be counted toward graduation requirements. The petition for clemency must be filed in the first semester of return to the institution. Approval is neither automatic or guaranteed.

Honors (Dean's List)

Semester Academic Honors (Dean's List) will be awarded to those students who complete, within any given semester (excluding winter and summer terms), 12 or more credits (excluding courses with grades of P and S) with a semester GPA of 3.5 or higher. This recognition will be noted on the student's academic record.

Academic Probation and Dismissal, Undergraduate Policy on

Consistent with the University of Maryland Student Academic Success - Degree Completion Policy, it is the intent of the University that its students make satisfactory progress toward their degree objectives, and achieve academic success. If a student has special circumstances that make it impossible to complete a normal course load, the student must meet with an advisor to discuss the circumstances, the student's plans for continued progress toward a degree, and the implications for continued enrollment.

The following guidelines for retention of students refer separately to semester (Fall and Spring) and Winter or Summer terms:

a. Academic retention is based solely on grade point average (GPA). A minimum of 120 successfully completed course credits is required for graduation in any degree curriculum. Individual colleges, schools, and departments may establish higher requirements for graduation. Students must consult the appropriate college, school, or department for specific information.

b. Satisfactory Performance is defined as the achievement of a cumulative GPA of 2.0 or above. Students whose semester GPA falls below 2.0 are encouraged to meet with their advisors regarding the development of a plan that will appropriately respond to the students academic difficulties and lead to academic improvement. Individual colleges, schools and departments may establish separate requirements for mandatory advising. Students must consult the appropriate college, school, or department for specific information.

c. Unsatisfactory Performance is defined as the achievement of a cumulative GPA of less than 2.0. Students will be placed on Academic Probation following any semester in which a 2.0 cumulative GPA is not achieved. Normally, students will be Academically Dismissed if they are unable to raise their cumulative GPA to 2.0 or higher at the end of their probationary semester.

Academic Probation:

Students will be placed on academic probation if their cumulative GPA falls below 2.0. Normally, student is expected to attain a 2.0 cumulative GPA at the end of any probationary semester. Students who fail to achieve a 2.0 cumulative GPA at the end of their probationary semester may be academically dismissed, depending on their credit level as detailed below.

1. Students who have earned 60 credits or more will be dismissed from the University in the event their cumulative GPA remains below 2.0 at the end of their probationary semester. Students who are on probation and attain a cumulative GPA of 2.0 at the end of a winter or summer term will not be subject to dismissal in the subsequent semester.

2. Students who are on academic probation and have earned fewer than 60 credits will be permitted to continue on academic probation if a minimum semester GPA of 2.0 is achieved in each semester of probation.

    a. Full-time students must complete 9 or more credits in each semester of probation. A completed credit is defined as credit for any course in which a student receives a grade of A, B, C, D, F, P, or S.

    b. Students who meet this requirement will be permitted to continue on probation until the close of the semester (excluding winter and summer terms) in which they attain a cumulative GPA of 2.0.

    c. However, students who are on probation will be dismissed if they have not achieved a cumulative GPA of 2.0 at the end of the semester in which they complete 60 credits.

    d. Students who are on probation and attain a cumulative GPA of 2.0 at the end of a winter or summer term will not be subject to dismissal in the subsequent semester.

3. The Office of the Registrar will notify students when they are placed on academic probation. Such notices will include a requirement that the students consult an academic advisor in their colleges early in the probationary semester and in no event later than the beginning of the early registration period for the next semester.

The Office of the Registrar will notify the colleges of students who are placed on academic probation and will note the academic probationary status on the students academic record.

a. The academic advisors will assist students in developing appropriate plans for achieving satisfactory academic performance.

b. Students who are placed on probation will not be allowed to add or drop courses, or register without the approval of an academic advisor in their college.

Academic Dismissal:

1. Students who have earned 60 or more credits will be dismissed if their cumulative GPA remains below 2.0 for two consecutive semesters (excluding winter and summer terms). Students who attain a cumulative GPA of 2.0 in the preceding winter or summer term will not be subject to dismissal.

2. Students who have earned fewer than 60 credits will be dismissed following any probationary semester in which they fail to attain a minimum 2.0 semester GPA and complete the requisite credits detailed under Academic Probation. Students who attain a cumulative GPA of 2.0 in the preceding winter or summer term will not be subject to dismissal.

3. Students who have been academically dismissed and who are reinstated will be academically dismissed again if a cumulative GPA of at least 2.0 is not achieved by the end of the first semester after reinstatement. Reinstated students will not be allowed to add or drop courses, or to register during any semester without the approval of an academic advisor in their college, unless a cumulative GPA of at least 2.0 is achieved.

4. The Office of the Registrar will notify the appropriate University offices when students are academically dismissed and will note the dismissal on the student's academic record.

5. The Office of Undergraduate Admissions will notify students in writing when they are dismissed. The notices will include a statement that registration for the next semester (excluding winter or summer terms) will be canceled.

6. Normally, a student dismissed for academic reasons must wait out one semester (fall or spring) before reinstatement. Exceptions will be determined by the Faculty Petition Board.

Application for Academic Reinstatement:

1. Students who have been dismissed may apply to the Faculty Petition Board for reinstatement on the grounds of mitigating circumstances, such as (i) demonstrated progress toward a degree by successful completion of 24 degree-applicable credits in the preceding year, (ii) continuing improvement in the cumulative grade point average, and (iii) progress in general education and major requirements.

2. The application for reinstatement must include a written statement explaining the circumstances leading to dismissal and a proposed plan to remedy those circumstances. Students are encouraged to consult with their academic advisors prior to submitting their applications to the Faculty Petition Board.

3. Applications for reinstatement can be obtained from the Reenrollment Office in the Office of Undergraduate Admissions, which is responsible for administering the reinstatement process in coordination with the Faculty Petition Board.

Faculty Petition Board:

1. The Reenrollment Office is responsible for submitting the reinstatement applications for review and decision by the Faculty Petition Board, which is comprised of tenured faculty appointed by the Senior Vice President for Academic Affairs and Provost. The Board is the sole arbiter of reinstatement applications.

2. The Faculty Petition Board has the discretion to establish the terms for reinstatement, including the requirements for achieving academic improvement and developing an academic plan for success.

3. The Reenrollment Office will forward the Boards decision to students at their permanent addresses.

Dismissal of Delinquent Students:

The university reserves the right to request at any time the withdrawal of a student who cannot or does not maintain the required standard of scholarship, or whose continuance in the university would be detrimental to his or her health, or the health of others, or whose conduct is not satisfactory to the authorities of the university. Additional information about the dismissal of delinquent students may be found in the Code of Student Conduct.

Attendance and Assessment/Examinations

Attendance

1. The university expects each student to take full responsibility for his or her academic work and academic progress. The student, to progress satisfactorily, must meet all of the requirements of each course for which he or she is registered. Students are expected to attend classes regularly, for consistent attendance offers the most effective opportunity open to all students to gain command of the concepts and materials of their courses of study. Except as provided below, absences will not be used in the computation of grades, and the recording of student absences will not be required of the faculty.

2. It is the policy of the university to excuse the absences of students that result from the following causes: illness of the student, or illness of a dependent as defined by Board of Regents policy on family and medical leave; religious observance (where the nature of the observance prevents the student from being present during the class period); participation in university activities at the request of university authorities; and compelling circumstance beyond the students control. Students claiming excused absence must apply in writing and furnish documentary support for their assertion that absence resulted from one of these causes.

3. In some courses, attendance and in-class participation are ongoing requirements and an integral part of the work of the course. In other courses, occasional in-class assessments may occur, sometimes without advance notice. It is the responsibility of the instructor to inform each class at the beginning of the semester of the nature of in-class participation expected and the effect of absences on the evaluation of the student's work in the course.

4. Absences in courses where in-class participation is a significant part of the work of the course shall be handled by the instructor in the course in accordance with the general policy of his or her academic unit.

5. Permanent changes in the scheduling or location of classes must be approved by the chair, the director or the dean of the department, non-departmentalized school or college, as appropriate.

Assessment

1. The university provides students with excused absences the opportunity to reschedule significant assessments, except in cases where the nature of the assessment precluded the possibility of rescheduling, OR to perform a substitute assignment without penalty. An instructor is not under obligation to offer a substitute assignment or to give a student a make-up assessment unless the failure to perform was due to an excused absence, that is, due to illness (of the student or a dependent), religious observance (where the nature of the observance prevents the student from being present during the class period), participation in university

activities at the request of university authorities, or compelling circumstances beyond the students control. Students claiming excused absence must apply in writing and furnish documentary support for their assertion that absence resulted from one of these causes.

The make-up assessment or substitute assignment must be at a time and place mutually agreeable to the instructor and student, cover only the material for which the student was originally responsible, and be at a comparable level of difficulty with the original assessment. In the event that a group of students requires the same make-up assessment or substitute assignment, one time and place may be scheduled. The make-up assessment or substitute assignment must not interfere with the student's regularly scheduled classes or in-class final examination.

Students who have a concern regarding religious observances should see their instructors at the start of the semester. Although the university attempts to accommodate the religious beliefs of all of its members, it functions within a secular environment and is limited in the extent to which it can interrupt its normal operations. The president shall determine when it is appropriate for the campus community to restrict rescheduling examinations or other significant assessments on the dates of religious observance.

At this time, examinations or other significant assessments may not be scheduled on Rosh Hoshanah, Yom Kippur, Good Friday, or the first two days of Passover.

In cases of dispute, the student may appeal to the chair, the director or the dean of the department, non-departmentalized school or college offering the course within one week from the date of the refusal to schedule a make-up assessment. In those instances where the instructor is the chair, director or dean, the appeal shall be made to the next higher administrative officer, whose decision shall be final.

2. The student must notify his or her instructor of the reason for absence as soon as possible. Where the reason for absence from a scheduled assessment is known well in advance (for example, in cases of religious observance or participation in university activities at the request of university authorities), the student must inform the instructor by the end of the schedule adjustment period. Prior notification is especially important in connection with final examinations, since failure to reschedule a final examination before conclusion of the final examination period may result in loss of credits during the semester. Where the reason is not known well in advance (for example, in cases of illness or compelling circumstances beyond the students control), the student must inform the instructor as soon as the reason develops, or as soon as possible after its development.

3. Ordinarily, assessments are given during class hours in accordance with the regularly scheduled (or officially arranged) time and place of each course. No less than seven calendar days notice shall be given for assessments scheduled at other times and places. It shall be the instructors responsibility to ensure that the change in schedule does not interfere with any students regularly scheduled classes or in-class final examinations. It is the responsibility of the student to be informed concerning the dates of announced quizzes, tests, and examinations. Performance assessments may take a variety of forms and need not be classroom-based written examinations.

4. A final examination shall be given in every undergraduate course. Exceptions may be made with the written approval of the chair, the director or the dean of the department, non-departmentalized school or college, as appropriate. However, a students final course grade shall be based on a combination assessments that is at least the equivalent of a comprehensive final examination. No final examination or equivalent may be given or due during the last week of classes. All in-class final examinations must be held on the date and at the time listed in the official final examination schedule. Out-of-class final examination or equivalent assessments shall be due on the date and at a time listed in the official final examination schedule.

5. The chair, the director or the dean of the department, non-departmentalized school or college, as appropriate, is responsible for the adequate administration of assessments in courses under his or her jurisdiction.

6. No in-class assessment shall exceed the allotted time for a regularly scheduled class period. In the case of in-class final examinations, the time allotted shall not exceed the scheduled final examination period.

7. Each student shall be given the instructions and performance requirements for all assessments intended to require more than one-half class period in a form translatable to hard copy, unless the chair, the director or the dean of the department, non-departmentalized school or college, as appropriate, has authorized another procedure. The instructions and requirements of the assessment shall be archived in an appropriate medium in a suitable place.

8. The following rules shall govern all in-class examinations, unless the instructor for a specific course stipulates alternate rules for that course. A breach of any of the rules shall constitute disruption of class, a disciplinary offense (Code of Student Conduct, section 9.m.), or may serve as the basis of an allegation of academic dishonesty.

a. Students arriving late for an examination may not unreasonably disrupt the examination room.

b. Students must leave all unauthorized materials (e.g., books, notes, calculators) with the proctor before being seated.

c. Where seating arrangements are established by proctors, student must conform to these arrangements.

d. Students may not return to an examination room after leaving, unless permission to do so has been granted by the proctor prior to the student's departure.

e. Students must cease conversation prior to the passing out of examination papers and maintain silence during the entire examination period.

f. Students must place examination papers face down on the writing desk until the examination is officially begun by the proctor.

g. Students must keep examination papers flat on the writing desk at all times.

h. Students at an examination must be prepared to show current University identification.

9. Each faculty member is to retain, for one full semester after a course is ended, the students final assessments in the appropriate medium. If a faculty member goes on leave for a semester or longer, or leaves the university, the final assessments and grade records for the course must be left with the chair, the director or the dean of the department, non-departmentalized school or college, as appropriate.

Classroom Climate, Statement on

The University of Maryland values the diversity of its student body and is committed to providing a classroom atmosphere that encourages the equitable participation of all students. Patterns of interaction in the classroom between the faculty member and students and among the students themselves may inadvertently communicate preconceptions about student abilities based on age, disability, ethnicity, gender, national origin, race, religion, or sexual orientation. These patterns are due in part to the differences the students themselves bring to the classroom. Classroom instructors should be particularly sensitive to being equitable in the opportunities they provide students to answer questions in class, to contribute their own ideas, and to participate fully in projects in and outside of the classroom.

Of equal importance to equity in the classroom is the need to attend to potential devaluation of students that can occur by reference to demeaning stereotypes of any group and/or overlooking the contributions of a particular group to the topic under discussion. Joking at the expense of any group creates an inhospitable environment and is inappropriate. Moreover, in providing evaluations of students, it is essential that instructors avoid distorting these evaluations with preconceived expectations about the intellectual capacities of any group.

It is the responsibility of individual faculty members to review their classroom behaviors, and those of any teaching assistants they supervise, to ensure that students are treated equitably and not discouraged or devalued based on their differences. Resources for self-evaluation and training for faculty members on classroom climate and interaction patterns are available from the Office of Human Relations.

Transfer Credit

For current University of Maryland, College Park students

The Office of the Registrar posts all transfer credit that would be acceptable to any of the degree programs at the University of Maryland, College Park. The dean of the college in which the student is enrolled determines which transfer credits are applicable to the student's degree program. In general, credit from academic courses taken at institutions of higher education accredited by a regional accrediting association will transfer, provided that the course is completed with at least a grade of C (2.0) and the course is similar in content and level to work offered at College Park. The title of courses accepted for transfer credit will be noted on the students record; however, the grade will not. Grades from transferred courses are not included in the University of Maryland, College Park, grade point average calculation. See chapter 1 for additional information.

Courses taken at other institutions while attending the University of Maryland, College Park

1. Courses taken at another institution may not be credited toward a degree without approval in advance by the dean of the college from which the student expects a degree. The same rule applies to registration in the summer program of another institution. *Permission to Enroll in Another Institution* forms are available in the office of the student's dean. This form must be submitted and approved by the college for any course which will eventually be added to the university transcript.

2. Courses taken at other University of Maryland Institutions
For students who began their attendance at the University of Maryland, College Park in Fall 1989 or later, all course work taken at any University System of Maryland institution will be posted as transfer credit. For all students who attended Maryland prior to Fall 1989, courses taken at another University of Maryland Board of Regents institution (UMBC, UMAB, UMES, UMUC) prior to Fall 1989 will be included in the cumulative GPA. Courses taken at any other institution may not be credited toward a degree without advance approval. See #1 above for information.

3. USM Concurrent Inter-Institutional Registration Program
University undergraduate students participating in the Concurrent Inter-Institutional Registration Program should obtain permission from their dean. Course work counts as resident credit. Students participating in this program must be enrolled full time in a degree program at University of Maryland, College Park, for the semester in which these courses are taken.

4. Consortium of Universities of the Washington Metropolitan Area
Courses taken through the Consortium are considered to be resident credit. See above under Consortium and the Registration Guide for information.

Transfer Credit Center
The Transfer Credit Center provides articulation information and assistance to students and transfer advisors. More information is available in the section on Transfer Admission in chapter 1 and on the internet at www.tce.umd.edu.

Proficiency Examination Programs (Credit-by-Exam, CLEP)

The University of Maryland, College Park offers new, continuing, and returning students several opportunities to earn college credit by demonstrating achievement in a subject field through examination. College Park recognizes three proficiency examination programs for credit: Advanced Placement (AP), Departmental Proficiency Examination Program (Credit-by-Examination), and College-Level Examination Program (CLEP). Undergraduate students may earn a total of up to one-half of the credits required for their degree through examination. Usually, this is no more than 60 credits. Students are responsible for consulting with the appropriate dean or advisor about the applicability of any credits earned by examination to a specific degree program. Students should also seek assistance in determining which University of Maryland, College Park courses duplicate credits earned for an examination. **Students will not receive credit for both passing an examination and completing an equivalent course.**

Advanced Placement (AP) Credit. For complete information about the applicability of AP exams and the assignment of credit, please see chapter 1.

Departmental Proficiency Examination (Credit-by-Examination)
College Park Departmental Proficiency Examinations, customarily referred to as credit-by-examination, are comparable to comprehensive final examinations in a course. Although the mathematics and foreign-language departments receive the most applications for credit by examination, many departments will provide examinations for certain of their courses. Initial inquiry as to whether an examination in a specific course is available is best made at the academic department which offers the course in question.

If an examination for a course is available, the department will provide information regarding time and place, type of examination, and material which might be helpful in preparing for the examination. An undergraduate who passes a departmental proficiency examination is given credit and quality points toward graduation in the amount regularly allowed in the course, provided such credits do not duplicate credit obtained by some other means. After making arrangements with the department, apply through the Division of Letters and Sciences, 1117 Hornbake Library, 301-405-2793.

Policies governing credit by examination:

1. The applicant must be formally admitted to the University of Maryland, College Park. Posting of credit earned, however, will be delayed until the student is registered.

2. Departmental Proficiency Examinations may not be taken for courses in which the student has remained registered at the University of Maryland, College Park, beyond the Schedule Adjustment Period even with a transcript notation of W.

3. Departmental Proficiency Examinations may not be used to change grades, including Incompletes and Withdrawals.

4. Application for credit-by-examination is equivalent to registration for the course; however, the following conditions apply:

a. A student may cancel the application at any time prior to completion of the examination with no entry on his/her permanent record. (Equivalent to the schedule adjustment period.)

b. The instructor makes the results of the examination available to the student prior to formal submission of the grade. Before final submission of the grade, the student may elect not to have this grade recorded. In this case, a mark of W is recorded. (Equivalent to the drop period.)

c. No examination may be attempted more than twice.

d. The instructor must certify on the report of the examination submitted to the Office of the Registrar that copies of the examination questions (or identifying information in the case of standardized examinations), and the students answers have been filed with the chair of the department offering the course.

5. If accepted by the student (see 4b above), letter grades earned through credit-by-examination are entered on the student's transcript, and are used in computing

his/her cumulative grade point average. A student may elect to take a credit-by-examination Pass-Fail only if the credit fulfills an elective in the student's degree program.**No college, major, field of concentration, or general education program requirement may be taken under the pass-fail option.** Please refer to the Pass-Fail policy under the Records section in this chapter.

College-Level Examination Program (CLEP)

The College-Level Examination Program (CLEP) recognizes college-level competence achieved outside the college classroom. Two types of CLEP tests are available: General Examinations, which cover the content of a broad field of study; and Subject Examinations, which cover the specific content of a college course. Credit can be earned and will be recognized by College Park for some CLEP General or Subject Examinations, provided satisfactory scores are attained. Credits earned under CLEP are not considered residence credit, but are treated as transfer credit. CLEP exams are administered at CLEP testing centers throughout the country. The University of Maryland, College Park is a CLEP Test Center (Test Center Code: 5814). To obtain an application or additional information, contact the CLEP Administrator in the Counseling Center, Room 0106A Shoemaker Hall, (301-314-7688), or write to CLEP, CN 6600, Princeton, NJ, 08541-6600. Students who want to earn credit through CLEP must request their official score reports to be sent to the Office of Undergraduate Admission, Mitchell Building, University of Maryland, College Park, MD 20742-5235. (The University of Maryland, College Park, Score Recipient Code is 5814.)

Policies governing CLEP are as follows:

1. A student must matriculate at the university before CLEP credits are officially posted. The posting will not be done until a student has established a record.

2. Each institution of the University System of Maryland establishes standards for acceptance of CLEP exemptions and credits. Students must check with the institution to which they will transfer to learn if they will lose, maintain, or gain credit.

3. College Park will award credit for a CLEP examination

a. provided the examination was being accepted for credit here on the date the student took the examination, and

b. provided that the examination was not taken during a students final 30 credits. The final 30 hours of credit are to be taken in residence, unless prior approval has been granted by the student's dean.

4. Credit will not be given for both completing a course and passing an examination covering substantially the same material.

5. Furthermore, credit will not be awarded for CLEP examinations if the student has previously completed more advanced courses in the same field.

6. CLEP examinations posted on transcripts from other institutions will be accepted if the examination has been approved by College Park and the scores reported are equal to or higher than those required by this institution. If the transcript from the prior institution does not carry the scores, it will be the responsibility of the student to request Educational Testing Service to forward a copy of the official report to the Office of Admissions. University awards credits for CLEP Examinations only as indicated on the chart provided in this chapter (if an examination is not listed, it is not accepted for credit at this institution).

If you have questions about the applicability of specific credit to your program, consult the list provided in this catalog or contact your Dean's Office.

College Level Examination Program (CLEP)

Exam Title	**Score**	**Related Course**	**Cr**	**Maj**	**Core**	**Notes**
General Exams						
Natural Science	50	LL Elective	3	No	No	
Humanities	50	LL Elective	3	No	No	
Social Science & History	50	LL Elective	3	No	No	
Subject Exams						
Biology Gen. Biology	49	LL Elective	3	No	No	Students who receive CLEP credit in Biology and wish to take additional BIOL credit should enroll in BIOL 105.
Chemistry Gen. Chemistry	50	LL Elective	3	No	No	Students who receive CLEP credit in Chemistry and wish to take additional CHEM credit should enroll in CHEM 131 AND 132.
Economics Prin. Maco.	57	ECON 201	3	Yes	Yes	ECON credits fulfill one of two CORE-Social/Behavioral Science requirements. Contact department for placement, 301-405-3513.
Prin. Micro.	54	ECON 200	3	Yes	Yes	
Financial Acctg	65	BMGT220	3	Yes	No	Students who receive CLEP credit in Accounting and wish to take additional accounting credit should enroll in BMGT 221.
Government American Govt.	52	GVPT 170	3	Yes	Yes	GVPT 170 fulfills one of two CORE-Social/Behavioral Science requirements. Students should contact the department for gateway applicability, 301-405-4136.
Mathematics Calculus/Elem. Functions	67	MATH 140	4	Yes	Yes	MATH 140 or 220 fulfills CORE-Math & Formal Reasoning non-lab requirement; also fulfills CORE-Fundamental Studies Math requirement. *Fulfills CORE-Fundamental Studies Math requirement.
	58	Math 220	3	No	Yes	
	50	LL Elective	3	No	*	
Sociology Intro. Sociology	50	LL Elective	3	No	No	Sociology majors who receive credit for this exam will be exempt from SOCY 100. Other students who wish to fulfill a CORE requirement are encouraged to enroll in SOCY 105.

Please Note:

- LL refers to courses at the lower (100 and 200) level. Any test not listed will not be accepted for credit at UMCP. Students may not receive credit both for CLEP courses and for equivalent UMCP courses or transfer courses (including Advanced Placement or International Baccalaureate). CLEP credit will be deleted in such cases. Applicable scores for a particular exam are those in effect when a student takes the exam. Contact your College Dean if you have questions.
- Certain CLEP tests may be revised during 2008-09. At the time this catalog was printed, information on the new versions of those tests was not available. Changes are possible in UMCP credit acceptance for revised CLEP exams. Contact the Testing Office for up-to-date information, 301-314-7688.
- Computer-based CLEP testing was implemented during 2003 for selected tests at selected test venues. Scoring procedures may change. The scores above apply to computer based testing. Departments will evaluate any new tests and scoring procedures as they become available. Some exams may be considered for credit on a case-by-case basis until review is complete. Contact an advisor or the Transfer Credit Center (tccinfo@.umd.edu) for further information. Students who have matriculated at UMCP are encouraged to speak to their advisor about departmental or Advanced Placement exams in addition to CLEP. All matriculated students must have permission of their college advisor to take CLEP tests. Students interested in taking MATH CLEP are encouraged to speak to the math advisor on campus, 301-405-4362.

Graduation, Applications, Commencement Honors

Graduation Applications

Each candidate for a degree or certificate must file a formal application with the Office of the Registrar. The deadline for application is the end of the schedule adjustment period for the semester in which the student plans to graduate, or at the end of the first week of the second summer session for August degrees.

In all cases, graduation applications must be filed at the beginning of the student's final semester before receiving a degree. The graduation applications are available on the internet at www.my.umd.edu or at the Registrar's Office, 1st floorMitchell Building.

Commencement Honors

Summa cum laude, magna cum laude and cum laude are the highest commencement honors that the University bestows for sustained excellence in scholarship. They are awarded to the top 10% of all students graduating in each college over the course of a year. Summa cum laude is awarded to students with a GPA equal to the highest two percent of all college graduates over the past three terms, magna cum laude to the next highest three percent, and cum laude to the following five percent. To be eligible for this recognition, at least 60 semester hours must be earned at the university or at a program in which credit earned is counted as University of Maryland, College Park, resident credit (contact the Office of the Registrar to determine program eligibility). No more than 6 credits taken pass/fail or satisfactory/fail shall count toward the 60-hour minimum. No student with a grade-point average of less than 3.3 will be considered for a commencement honor. Because grades for a term generally are officially recorded after the term's graduation day, computation of the student's GPA will not include grades for courses taken during the student's final semester at the university. However, the hours taken during that semester will apply toward the 60-hour requirement.

Election to Phi Beta Kappa

Organized in 1776, Phi Beta Kappa is the oldest and most widely respected academic honorary society in the United States. Invitation to membership is based on outstanding scholastic achievement in studies of the liberal arts and sciences. Student members are chosen entirely on the basis of academic excellence; neither extracurricular leadership nor service to the community is considered. Election is held twice a year, once in the fall and once in the spring semester.

The process for election to Phi Beta Kappa involves a review in November for those who graduated the previous August or those who will graduate in December, and a review in March for those graduating in May. A number of qualifying juniors are also considered during the same semester. The review is conducted by a select committee of faculty members representing the humanities, social sciences, and natural sciences. The committee reviews transcripts of all juniors and seniors with qualifying grade point averages. Whether a student qualifies for membership in Phi Beta Kappa depends on the quality, depth, and breadth of the students record in liberal education courses. The final decision for election rests with the resident faculty members of Phi Beta Kappa. There is no application procedure for election to Phi Beta Kappa (see #4 below for possible exception).

Requirements for consideration of membership in Phi Beta Kappa at the University of Maryland,College Park, campus chapter include:

1. **Grade Point Average:** For seniors a grade point average of at least 3.5 overall as well as in all liberal arts and sciences courses taken. For juniors the minimum grade point average is 3.75, and possibly higher depending on the number of candidates in a particular year.
2. **Residence:** At least 60 credit hours must be taken at the University of Maryland, College Park.
3. **Liberal Courses:** For seniors, at least 90 credit hours in courses in the liberal arts and sciences (where liberal courses are to be distinguished from professional or technical courses), at least 45 of which must be taken at the University of Maryland, College Park. For juniors, at least 75 total credit hours must be completed, at least 60 of which are in courses in the liberal arts and sciences; of these, at least 45 must be taken at the University of Maryland, College Park. Students would ordinarily be majors in one of the programs in the liberal arts and sciences. However, students with the requisite number of liberal credit hours can be admitted if they have completed at least 5 courses (15 credit hours or more) for seniors or three courses (9 credit hours or more) for juniors in a single liberal arts and sciences department/program at UMCP.
4. **Required courses:** One semester of mathematics, which must be fulfilled by college-level credit hours (including AP credit), and two college semesters of a foreign language at the elementary level, or above. The language requirement may also be satisfied by completion of four years of one language other than English at the high school level or above, or the equivalent. Students with such a foreign language background who wish to be considered for admission to Phi Beta Kappa should notify the Phi Beta Kappa office in writing and provide the appropriate documentation (such as a high school transcript) prior to the month of consideration. Credit is not allowed based on SAT scores.
5. **Distribution:** The credit hours presented for Phi Beta Kappa must contain at least three liberal arts and sciences courses (9 credit hours or more) in each of the three following areas: a) arts and humanities, b) behavioral and social sciences, c) natural sciences and mathematics (including a laboratory science course; this requirement cannot be fulfilled by AP credit). All the courses in at least two of the three required areas must be completed at UMCP and in the remaining area no more than one AP course can be used to fulfill the requirement. In general, Phi Beta Kappa will accept the CORE classification of courses but courses which CORE designates as having more than one classification may not satisfy any Phi Beta Kappa distribution requirement. Students with more challenging courses and moderately high grade point averages are preferred by the committee to those with higher grade point averages but a narrow range of courses.

Minimal qualifications in more than one area may preclude election to Phi Beta Kappa. Meeting the above requirements does not guarantee election to Phi Beta Kappa. The judgment of the resident faculty members of Phi Beta Kappa on the quality, depth, and breadth of the student's record is the deciding factor in every case. Any questions about criteria for election to Phi Beta Kappa (including equivalency examinations in foreign languages) should be directed to the Phi Beta Kappa Office, Dr. Denis Sullivan, 301-405-8986.

Academic Integrity

The University of Maryland is an academic community. Its fundamental purpose is the pursuit of knowledge. Like all other communities, the University can function properly only if its members adhere to clearly established goals and values. Essential to the fundamental purpose of the University is the commitment to the principles of truth and academic honesty. Accordingly, the *Code of Academic Integrity* is designed to ensure that the principle of academic honesty is upheld. While all members of the University share this responsibility, the *Code of Academic Integrity* is designed so that special responsibility for upholding the principle of academic honesty lies with the students.

The University's *Code of Academic Integrity* is a nationally recognized honor code, administered by a Student Honor Council. Any of the following acts, when committed by a student, shall constitute academic dishonesty:

Cheating: *Intentionally using or attempting to use unauthorized materials, information, or study aids in any academic exercise.*

Fabrication: *Intentional and unauthorized falsification or invention of any information or citation in an academic exercise.*

Facilitating academic dishonesty: *Intentionally or knowingly helping or attempting to help another to violate any provision of the Code of Academic Integrity.*

Plagiarism: *Intentionally or knowingly representing the words or ideas of another as one's own in any academic exercise.*

If it is determined that an act of academic dishonesty has occurred, a grade of XF is considered the normal sanction for undergraduate students. The grade of XF is noted on the academic transcript as failure due to academic dishonesty. Lesser or more severe sanctions may be imposed when there are circumstances to warrant such consideration. Suspension or expulsion from the University may be imposed even for a first offense.

Students should consult the *Code of Academic Integrity,* at www.president.umd.edu/policies/iii100a.html for further information regarding procedures for reporting and resolving allegations of academic dishonesty.

Honor Pledge

In 2002, the University adopted an honor pledge in which students are asked to write out and sign the pledge on major assignments and exams, as designated by the instructor. The Honor Pledge is designed to encourage instructors and students to reflect upon the University's core institutional value of academic integrity. Professors who invite students to sign the Honor Pledge signify that there is an ethical component to teaching and learning. Student who write by hand and sign the Pledge affirm a sense of pride in the integrity of their work. The Pledge states:

"I pledge on my honor that I have not given or received any unauthorized assistance on this assignment/ examination."

For more information regarding the Code of Academic Integrity, the Honor Pledge, or the Student Honor Council please refer to www.shc.umd.edu or contact the Office of Student Conduct.

The primary purpose for the imposition of discipline in the university setting is to protect the campus community. Consistent with that purpose, reasonable efforts are also made to foster the personal and social development of those students who are held accountable for violations of university regulations. Compared to disciplinary systems at many universities, University of Maryland students are given unusual authority and responsibility for management of the campus process. Membership on the student judiciary is an extraordinary educational experience, and opportunity to be of service to the community, and a personal honor.

Cases that may result in suspension or expulsion are heard by conduct boards, comprised entirely of students. In such cases, students are accorded substantial procedural protections, including an opportunity for a hearing and an appeal. Less serious cases are resolved in disciplinary conferences conducted by University staff members. Acts of violence (including any sexual assault), intimidation, disruption, or rioting; substantial theft or vandalism; fraud or forgery; use or distribution of illegal drugs; and any *Code of Student Conduct* violation motivated by considerations of sex, race, ethnic origin, sexual orientation or religion are forms of misconduct that most frequently result in dismissal from the University. Students accused of violating University disciplinary regulations are encouraged to discuss the allegations with their parents or guardians, legal counsel, and with appropriate University staff members.

Prohibited Conduct

A complete list of conduct considered prohibited as well procedures for resolving allegations of misconduct may be found in the *Code of Student Conduct* at www.president.umd.edu/policies or through the Office of Student Conduct website at www.studentconduct.umd.edu
The following is general notice of what constitutes prohibited conduct and is subject to disciplinary action:

- Use, possession or storage of any weapon
- Causing physical harm or apprehension of harm
- Initiating or causing to be initiated a false report, warning or threat of fire, explosion or other emergency
- A criminal offense committed off-campus
- Violating the terms of any disciplinary sanction
- Misusing or damaging fire safety equipment
- Distribution or possession for purposes of distribution of any illegal drug
- Furnishing false information to the University
- Making, possessing, or using any forged, altered, or falsified instrument of identification
- Interfering with the freedom of expression of others
- Theft of property or of services; possession of stolen property
- Destroying or damaging the property of others
- Engaging in disorderly or disruptive conduct
- Failure to comply with the directions of University officials
- Use or possession of any illegal drug
- Use or possession of fireworks on University premises
- Violation of published University regulations or policies including the residence hall contract, alcohol policy, parking regulations, rioting, hazing policy, and sexual assault.

Note: Effective April 2006, students who violate the following section will be dismissed from the University:

> *Rioting, assault, theft, vandalism, fire-setting, or other serious misconduct related to a University-sponsored event, occurring on- or off-campus, that results in harm to persons or property or otherwise poses a threat to the stability of the campus or campus community may result in disciplinary action regardless of the existence, status, or outcome of any criminal charges in a court of law related to misconduct associated with a University-sponsored event.*

For more information regarding student conduct issues, contact the Office of Student Conduct at 301-314-8204 or visit www.studentconduct.umd.edu

Summary of Policies and Regulations Pertaining to Students

Descriptions of these policies are for general information only. Please refer to specific texts for official language. Modifications may be made or other policies may be added throughout the year. Please contact the Office of Student Conduct for additional information.

In addition to the policies reprinted or identified elsewhere (e.g., the *Code of Student Conduct* and *Code of Academic Integrity*), students enrolled at College Park are expected to be aware of, and to abide by, the policies summarized below. Information about where the complete texts may be consulted follows each summary. This information was compiled and provided by the Office of Student Conduct.

Alcoholic Beverage Policy and Procedures forbid unauthorized possession, use, or distribution of alcoholic beverages on university property. Certain exceptions are specified. (Information subject to change pending legislation. Originally approved by the Board of Regents, September 26, 1969. Legal drinking age in the State of Maryland is 21 years. Reprinted in Student Handbook.)

Policy on Amplifying Equipment restricts the hours and locations of use of certain forms of sound amplifying equipment, provides a procedure for the authorization of otherwise restricted uses of sound amplifying equipment, and locates responsibility for complaints with those using the equipment. (Adopted by the University Senate, June 2, 1970. Reprinted in the Student Handbook.)

Campus Activities Policies regulate reservation of university facilities, advertising, co-sponsorship, cancellation and postponement, and various other matters relating to programs of student organizations. (Published in the Event Management Handbook. For more information, contact the Campus Reservations Office.)

Computer Use Policy defines standards for reasonable and acceptable use of University computer resources, including electronic mail.

Policy on Demonstrations establishes guidelines for demonstrations and picketing. Stipulates that the university will take steps necessary both to protect the right of individuals or groups to demonstrate and to protect the freedom of speech, assembly, and movement of any individual or group. (Adopted by the University Senate, June 2, 1970. Reprinted in the Student Handbook.)

Examination Rules set general standards for student conduct during examinations. They are applicable to all examinations given at the College Park campus unless contrary instructions are provided by the faculty member administering the examination. (Printed on most university examination books. See also chapter 4.)

Policy on Hazing and Statement on Hazing prohibits hazing, which is defined as intentionally or recklessly subjecting any person to the risk of bodily harm, or severe emotional distress, or causing or encouraging any person to commit an act that would be a violation of law or university regulations, for the purpose of initiating, promoting, fostering, or confirming any form of affiliation with a student group or organization, as defined by the *Code of Student Conduct*. The express or implied consent of the victim will not be a defense. For more information, contact the Office of Student Conduct.

Campus Parking Regulations cover registration, permits, fees, violations, enforcement, fines, towing and impounding, reviews, carpool programs, special events parking, emergency parking, and a number of other areas. Notably, the regulations provide that "the responsibility of finding an authorized parking space rests with the driver." Students who have 55 or fewer credits and live in the "Graham Cracker Complex" cannot register for a parking permit. (Current regulations in effect since July, 1997. An informational guide is distributed to all who register for parking. For more information, contact the Department of Transportation Services.)

Policy Pertaining to Public Displays defines standards for permissible displays, objects or structures not designed to be continuously carried or held by a demonstrator or picketer so as simultaneously to protect freedom of expression and prevent unreasonable threats to the health, safety, security, or mission of the campus. (Approved by the President, March 29, 1989. For more information, contact the Office of the Vice President for Student Affairs.)

Residence Hall Rules define prohibited conduct in and around campus residence and dining halls, buildings, and at Department of Resident Life- and/or Department of Dining Services-sponsored activities, in addition to that which falls under the Residence Halls/Dining Services Agreement, *Code of Student Conduct*, and federal, state and local laws. The rules also specify standard sanctions for rule violations, and provide for an adjudication process. (Reprinted in *Community Living*, the Residence Halls and Dining Services Handbook. For more information, contact the Department of Resident Life.)

Sexual Assault Policy offers advice and guidance for complainants, including assistance in filing criminal complaints. Defines and sets penalties for sexual assault. Specifies that [s]exual assault is a serious offense and the standard sanction for any sexual assault, including acquaintance rape, is expulsion.

Student Organization Registration Guidelines define student organizations, responsibilities of officers, and registration, and establish types of registration, a registration process, certain privileges of registered student organizations in good standing, sanctions which may result from registration review, and guidelines for constitutions. (For more information, or for a copy of the guidelines, contact the Office of Campus Programs.)

5. General Education Requirements (CORE)

CORE Liberal Arts and Sciences Studies Program

General Education Program and Requirements

Office of the Associate Provost for Academic Affairs and Dean for Undergraduate Studies
2130 Mitchell Building, 301-405-9363
Director CORE Planning and Implementation: Laura Slavin
www.ugst.umd.edu/core

In our world of rapid economic, social, and technological change, students need a strong and broadly based education. General education helps students achieve the intellectual integration and awareness they need to meet challenges in their personal, social, political, and professional lives. General education courses introduce the great ideas and controversies in human thought and experience. A solid general education provides a strong foundation for the life-long learning that makes career-change goals attainable. The breadth, perspective, and rigor provided by the CORE curriculum helps Maryland graduates become "educated people."

Donna B. Hamilton
Associate Provost and Dean for Undergraduate Studies

BROAD OUTCOME GOALS FOR THE CORE CURRICULUM [Approved October 6, 2005 by the University Senate CORE Committee]

After completion of CORE Program requirements students should be able to:

1. demonstrate understanding of major findings and ideas in a variety of disciplines beyond the major;

2. demonstrate understanding of methods, skills, tools and systems used in a variety of disciplines, and historical, theoretical, scientific, technological, philosophical, and ethical bases in a variety of disciplines;

3. use appropriate technologies to conduct research on and communicate about topics and questions and to access, evaluate and manage information to prepare and present their work effectively to

meet academic, personal, and professional needs;

4. demonstrate critical analysis of arguments and evaluation of an argument's major assertions, its background assumptions, the evidence used to support its assertions, and its explanatory utility;

5. understand and articulate the importance and influence of diversity within and among cultures and societies;

6. understand and apply mathematical concepts and models; and

7. communicate effectively, through written and oral communication and through other forms as appropriate.

Note: To view Learning Outcome Goals for each of the CORE categories, please visit: www.ugst.umd.edu/core/LearningOutcome.htm

To obtain a CORE Academic Planner and Record Keeper, visit your college advising office, or the Office of Undergraduate Studies (2130 Mitchell Building).

Who Completes CORE?

To earn a baccalaureate degree, all students at the University of Maryland, College Park complete both a major course of study and a campus-wide general education program. Students who enter the University May 1990 and after complete CORE requirements.

Exceptions: Students who enter the University with nine or more credits earned before May 1990 from the University of Maryland, College Park, or any other college may complete their general education requirements under the University Studies Program (USP), subject to certain limitations. (See "USP" and "Statute of Limitations" sections below.) Advanced Placement (AP) and other examination-based credits do not count in these determinations.

University Studies Program (USP)

For detailed information about USP requirements, see undergraduate catalogs dated 1992 or earlier, or contact the CORE program at 2130 Mitchell Building, 301-405-9359. Information on USP is also at: www.ugst.umd.edu/core/moreinfo/usp.html. NOTE: Students who graduate under USP requirements August 1994 and thereafter must fulfill the Advanced Studies requirements described in the Fall 1994 and subsequent catalogs. (See CORE Advanced Studies section.)

Statute of Limitations for Previous General Education Programs (GEP, GUR, USP)

Undergraduate students who return to the university after August 1987 no longer have the option of completing general education requirements under the older General Education Program (GEP) or the General University Requirements (GUR). Thereafter, following any substantive change in general education requirements (like the change in Fall 1990 from USP to CORE), undergraduate students returning or transferring to College Park after a separation of five continuous years must follow the requirements in effect at the time of re-entry. An exception may be granted to those students who at the time of separation had completed 60 percent of the general education requirements then in effect.

Maryland Public Community College Students

For the purpose of determining which general education program is required (CORE or USP), students transferring to the University of Maryland from Maryland public community colleges shall be treated as if their registration dates were concurrent with enrollment at this university.

CORE Program Components

1. FUNDAMENTAL STUDIES build competence and confidence in basic writing and mathematics. Mastery of these basics enhances success both during and after college. Students begin fulfilling Fundamental Studies requirements in their first year at the University. www.ugst.umd.edu/core/elements/FundaSt.html

2. DISTRIBUTIVE STUDIES focus on breadth, including courses in the following categories: Literature; The History or Theory of the Arts; Humanities; Physical Sciences; Life Sciences; Mathematics and Formal Reasoning; Social or Political History; Behavioral and Social Sciences; and Interdisciplinary and Emerging Issues. Students generally pursue Distributive Studies in the first two years of their course work. www.ugst.umd.edu/core/elements/DistrSt.html

3. ADVANCED STUDIES allow students to enhance their degree and strengthen their critical thinking and writing skills by taking two upper-level courses outside their major after 60 credits. Students may substitute an approved CORE Capstone course in their major or a senior or honors thesis for one of these two courses.www.ugst.umd.edu/core/elements/AdvanSt.html

4. HUMAN CULTURAL DIVERSITY gives students the opportunity to examine their ideas and values in the light of various cultural, intellectual, and social contexts. Diversity courses increase knowledge of what constitutes difference and increase students' ability to learn from and appreciate people, cultures, ideas, and art forms that are often different from those they know best. Students may complete the Cultural Diversity requirement at any time before graduation. www.ugst.umd.edu/core/elements/Diversity.html

CORE Program Outline

(Requirements Outline: www.ugst.umd.edu/core/core_req.html)

IMPORTANT NOTES about Fundamental and Distributive Studies courses:

- MUST be selected from the approved CORE course lists to count toward CORE requirements. At www.ugst.umd.edu/core, click on ***What are the CORE Courses?*** for links to the current lists of approved courses in each CORE category.
- MAY also be used to satisfy college, major, and/or supporting area requirements if the courses also appear on CORE Fundamental or Distributive Studies lists.
- CORE courses MAY NOT be taken on a Pass-Fail basis.

I. CORE Fundamental Studies

Three Courses (9 credits) Required

1. One course in Introduction to Writing (Must be attempted within the first 30 credits; must be passed within the first 60 credits.) See: www.english.umd.edu/index.

Approved CORE Introduction to Writing Courses: Select appropriate course based on requirements listed.

ENGL 101 Introduction to Writing
ENGL 101A Introduction to Writing (Must be taken if student has TSWE [SAT verbal subtest] score below 33)
ENGL 101H Introduction to Writing (Honors Students)
ENGL 101X Introduction to Writing (Students for whom English is a second language may register for ENGL 101X instead of ENGL

101.)

Note: Based on scores from either the TOEFL or MEIP, students may be required to complete a program of English language instruction for non-native speakers through the MEI before being allowed to register for ENGL 101X.

Exemptions from Introduction to Writing requirement:

- AP English Language and Composition test score of 4 or 5, OR
- SAT verbal score 670 or above for scores achieved between May 1995 and February 2005. (In April 1995, the Educational Testing Service re-centered the scores on the SAT. Students whose test scores are from before April 1995 must have received a score of 600 or above to be exempt from Freshman Writing. This re-centering does not reflect a raising of the requirement for exemption, but a change in the scoring system used by ETS.
- In March 2005, ETS began the use of a new SAT test for writing. Information about exemption in connection with SAT tests taken after March 2005 will be available at www.english.umd.edu/index.

2. One course in Mathematics (Must be attempted within the first 30credits; must be passed within the first 60 credits.) See www.ugst.umd.edu/core/courses/Fundamental/FundaSt-math.html

Approved CORE Fundamental Studies Mathematics Courses:

MATH 110 Elementary Mathematical Models; OR
MATH 112 College Algebra with Applications and Trigonometry; OR
MATH 113 College Algebra with Applications; OR
MATH 115 Pre-calculus; OR
Any 100-or 200-level MATH or STAT course except MATH 199, 210, 211, 212,213, 214, and 274.

Exemptions from Mathematics requirement:

- SAT Math score of 600 or above; OR
- AP score of 4 or above in Calculus AB or BC; OR
- AP score of 4 or above in Statistics; OR

- CLEP Calculus Exam score of 50 or higher.

Note: If you are placed in the Developmental Math Program by the Mathematics Placement Exam, you may be offered the opportunity to combine your Developmental course with the appropriate subsequent course of MATH 110, 111, 113, or 115 and thus finish both in one semester. For further information, please see the Developmental Math Program web site: www.math.umd.edu/undergraduate/courses/fsm.shtml

3. One course in Professional Writing (taken after 60 credits). See www.ugst.umd.edu/core/courses/Fundamental/Funda-St-professional.html

Approved CORE Professional Writing Courses: Select the appropriate course based on requirements or interests listed

ENGL 390 Science Writing
ENGL 391 Advanced Composition
ENGL 392 Legal Writing
ENGL 393 Technical Writing
ENGL 394 Business Writing
ENGL 395 Writing for Health Professions
ENGL 398 Topics in Professional Writing

Suffixed versions of the above course numbers also fulfill the CORE Professional Writing requirement.

Exemption from Professional Writing Requirement:

- Grade of "A" in ENGL 101 (NOT ENGL 101A or ENGL 101X), except for students majoring in Engineering. All Engineering majors must take ENGL 393.

Note: No exemption from the Professional Writing requirement will be granted for achievement on SAT verbal exam. Professional Writing courses cannot be used to fulfill Advanced Studies requirements.

II. CORE Distributive Studies

Nine Courses (28 credits) Required

See the most current listings of approved CORE courses at

www.ugst.umd.edu/core, or the online Schedule of Classes at
www.testudo.umd.edu/ScheduleOfClasses.html

1. Humanities and the Arts-three courses required:

- One course from Literature (HL) list: www.ugst.umd.edu/core/courses/Distributive/HL.html, ***and***
- One course from The History or Theory of the Arts (HA) list: www.ugst.umd.edu/core/courses/Distributive/HistoryCo.html ***and***

- One more course from Literature (HL), OR The History or Theory of the Arts (HA), OR Humanities (HO) lists. HO List: www.ugst.umd.edu/core/courses/Distributive/HumanitiesCo.html

Note: There is no specific CORE requirement for a course from the Humanities (HO) list.

2. The Sciences and Mathematics - three courses required:

- Up to two courses from Physical Sciences (PL/PS) lists

  PL List: www.ugst.umd.edu/core/courses/Distributive/PhysicalLabCo.html
  PS List: www.ugst.umd.edu/core/courses/Distributive/PhysicalCourses.html
  and

- Up to two courses from Life Sciences (LL/LS) lists

  LL List: www.ugst.umd.edu/core/courses/Distributive/LifeLabCo.htm
  LS List: www.ugst.umd.edu/core/courses/Distributive/LifeCo.html
  and

- Up to one course from Mathematics and Formal Reasoning (MS) list

  MS List: www.ugst.umd.edu/core/courses/Distributive/MathCo.html

  Notes: At least one science course MUST include or be accompanied by a lab taken in the same semester (LL or PL lists only). More than one lab course may be taken. Courses must be taken from at least two of the three lists. There is no specific CORE requirement for a course from the Mathematics and Formal Reasoning (MS) list. At least two life and/or physical science courses must be taken (PL, PS, *LL, and LS lists). The third Sciences and Mathematics course may be another science selection or may be chosen from the Mathematics and Formal Reasoning (MS) course lists.*

3. Social Sciences and History-three courses required:

- One course from Social or Political History (SH) list

SH List: www.ugst.umd.edu/core/courses/Distributive/SocialCo.html ***and***

- Two courses from Behavioral and Social Sciences (SB) list

SB List: www.ugst.umd.edu/core/courses/Distributive/BehavCo.html

4. Interdisciplinary and Emerging Issues (CORE CODE: IE)

OPTIONAL CORE DISTRIBUTIVE STUDIES CATEGORY EFFECTIVE BEGINNING FALL 2005

The IE category features courses that provide an interdisciplinary examination of issues (theory, questions, methods) across CORE areas, or present a significant portion of content that does not fit into any of the specific CORE areas but deals with contemporary issues, emerging disciplines, or other categories of knowledge, skills, and values that lie outside these areas.

Students may take **one** IE course in place of one of the following:

- The third course in the Humanities and the Arts category (one HL and one HA must be taken) OR
- The third course in the Sciences and Mathematics category (two science courses chosen from PL, PS, LL, or LS lists including at least one course from the LL or PL lists must be taken) OR
- One SB course in the Social Sciences category (one SH and one SB must be taken)

See the CORE website at www.ugst.umd.edu/core for details on how to use the IE option.

IMPORTANT NOTES ON THE IE OPTION

- IE is an optional CORE distributive studies category; Students may fulfill CORE requirements without taking an IE course.
- Only one IE course may be counted toward fulfilling CORE Distributive

Studies requirements.

- Whether a student takes an IE course or not, total CORE Distributive Studies course and credit requirements remain the same: at least 9 courses and 28 credits.

IE List: www.ugst.umd.edu/core/courses/Distributive/IE.html

III. CORE Advanced Studies

Two Courses (6 credits) Required

Students may choose their two Advanced Studies courses from a wide range of upper-level offerings outside their majors. Good choices include courses that mesh with or expand educational goals or other interests, increase knowledge, and strengthen critical thinking and writing skills.

CORE Advanced Studies Requirement: Two upper-level (300- or 400-level) courses outside the major taken after 60 credits. Students may substitute a CORE approved senior capstone course in their major or a senior or honors thesis for one of the two required Advanced Studies courses. Enrollment in CORE Capstone courses will be subject to departmental guidelines. The other course must be outside the major. Students completing double majors or double degrees will have fulfilled the campus Advanced Studies requirement, unless their primary major or college has additional requirements. The student's academic college determines whether or not a course is "outside the major" for the purpose of fulfilling CORE Advanced Studies.

The following may NOT be used to fulfill Advanced Studies requirements:

- Professional Writing courses (courses that meet the Fundamental Studies upper-level writing requirement);
- courses used to meet Distributive Studies requirements;
- internships, practica, or other experiential learning types of courses;
- courses taken on a pass/fail basis.

One independent studies course (minimum of three credits, outside the major)may be used toward Advanced Studies requirements as long as it is consistent with the rules above and the faculty member supervising the independent study agrees that it is appropriate for Advanced Studies.

Notes: CORE Capstone courses must be taken within the major. A senior thesis (minimum of 3 credits) or successful completion and defense of an honors thesis in either the General Honors or a Departmental Honors Program (minimum of

3 credits) counts as CORE Capstone credit.

CORE Capstone List:
www.ugst.umd.edu/core/courses/Advanced/CapstoneCo.html

IV. CORE Human Cultural Diversity

One Course (3 credits) Required

See the CORE Diversity List at www.ugst.umd.edu/core/courses/Diversity.html or the online Schedule of Classes at www.testudo.umd.edu/ScheduleOfClasses.html

Cultural Diversity courses focus primarily on: (a) the history, status, treatment, or accomplishment of women or minority groups and subcultures; (b) non-Western culture, or (c) concepts and implications of diversity.

Note: A number of CORE Human Cultural Diversity courses also satisfy CORE Distributive Studies, Advanced Studies, or a college, major, and/or supporting area requirement.

Study Abroad and Satisfying Core Requirements

Students may use study abroad to earn credit toward University of Maryland CORE Distributive and/or Advanced Studies requirements. All students considering study abroad must meet with a Study Abroad Advisor and complete the Permission to Study Abroad form (available at the Study Abroad Office). The Study Abroad Office determines if the course work will be completed through an accredited academic program and be eligible for transfer credit. Upon approval, the number of credits will be determined for each course. How the courses will apply to a student's graduation requirements will be determined by the student's advising college. CORE Distributive Studies equivalencies (if applicable) must be shown clearly on the Study Abroad form with approvals from the UM academic departments which offer similar courses. CORE Advanced Studies criteria also apply to Study Abroad courses students wish to count toward CORE Advanced Studies. Some college/departmental guidelines and restrictions may apply.

Participation in a study abroad program with the successful completion and transfer of at least 9 credits abroad automatically waives a student's CORE Human Cultural Diversity requirement.

Approved Courses for the CORE Program

Visit the CORE Web site at www.ugst.umd.edu/core **for program descriptions** *for the requirements in each CORE Category, course lists and further details.*

Notes about the lists:

1. At the Web site listed above, click on ***What are the CORE Courses?*** for links to the current lists of approved courses in each CORE category. Note that courses are added and deleted over time. A selection of the approved courses is offered each semester.

2. Some courses are approved for CORE for one semester only to offer students special opportunities. The one-time approval list changes each semester. Go to www.ugst.umd.edu/core/ and click on ***What are the CORE Courses?***, then click on ***One-Time Only Courses.***

3. Course numbers and titles change from time to time. See the CORE Web site listed above for updates.

4. In a particular semester, courses may be cross-listed or shared by more than one department and may appear under more than one course number. If cross-listed or shared courses are approved for CORE, this information will be available in the online listings. Frequent instances include courses with prefixes AASP, AAST, AMST, CMLT, JWST, LGBT, and WMST.

5. For information about Honors (HONR) courses that are approved for CORE, please refer to the online resources noted above. Other resources include the current "The University Honors Program Information and Course Description Booklet" and the University Honors Program website: www.honors.umd.edu

6. For information about CORE Fundamental Studies courses, please see the Fundamental Studies section above.

6. The Colleges and Schools

COLLEGE OF AGRICULTURE AND NATURAL RESOURCES (AGNR)

0107 Symons Hall, 301-405-7761
www.agnr.umd.edu
eweiss@umd.edu
Dean: Cheng-i Wei
Associate Dean(s): Leon H. Slaughter
Assistant Dean(s): Ray Stricklin

The College of Agriculture and Natural Resources offers a variety of academic programs that apply science, management, design, and engineering to improve the world in which we live and work. Feeding the world's population, developing scientifically-based land use practices and policies, understanding animal and plant biology, improving nutrition and its effects on human health, conserving and restoring ecosystems, and profitably managing farms and agribusinesses in harmony with the environment are all vital concerns of the College. Integrating the use and protection of natural resources in the production of food and nursery crops is a challenge facing students.

In addition to course work, undergraduates have opportunities to work closely with faculty in state-of-the-art facilities including those for animal sciences, dietetics, environmental science and technology, plant sciences, and veterinary medicine. The College also serves as the academic home of the Maryland Campus of the Virginia-Maryland Regional College of Veterinary Medicine. Nearby resources such as the U.S. Department of Agriculture's Beltsville Agricultural National Research Center, the National Institutes of Health, the Food and Drug Administration, the Smithsonian Institution and the National Zoo, Maryland's Departments of Agriculture and Natural Resources, and the Patuxent Wildlife Research Center enhance teaching, research, internship, and career opportunities for students. Field study courses offered in Brazil, Belize, Egypt, England, and Costa Rica, and study-abroad programs such as those in Russia and Angers, France expose students to other cultures and environments. Learning opportunities are also strengthened through student involvement in such co-curricular activities as the College Honors Program, career programs, leadership workshops, and student clubs.

Special Advantages and Facilities

Educational opportunities in the College of Agriculture and Natural Resources are enhanced by the proximity of several research units of the federal government. Teaching and research activities in the College are conducted with the cooperation of scientists and professional people in government positions. Of particular interest are the National Agricultural Research Center at Beltsville, the National Agricultural Library, the National Arboretum, and the Food and Drug Administration.

Instruction in the basic biological and social sciences, and landscape design is conducted in modern, technologically-equipped classrooms and laboratories. The application of basic principles to practical situations is demonstrated for the student in numerous ways. In addition to on-campus facilities, the college operates several education and research facilities throughout Maryland. Horticultural and agronomic crops, turf, beef, horses, dairy cattle, and poultry are maintained under practical and research conditions and may be used by our students. These centers, as well as other selected locations on and off campus also serve as living laboratories for environmental studies.

Admission Requirements

It is recommended that students entering the College of Agriculture and Natural Resources have completed a high school preparatory course that includes: English, 4 units; mathematics, 3 units; biological and physical sciences, 3 units; and history or social sciences, 2 units. The Landscape Architecture major is a limited enrollment program (LEP). See chapter 1 for general limited-enrollment program admission policies.

Undergraduate Degree Requirements/Degree Options

Departments in the College of Agriculture and Natural Resources offer the following programs of study:

> **Agricultural and Resource Economics:** Business Management; Agricultural Science; Environmental and Resource Policy; Food Production; International Agriculture; and Political Process.
>
> **Animal Sciences:** Animal Care and Management; Equine Studies; Laboratory Animal Care; Science/Preprofessional; and Animal Biotechnology
>
> **Combined Agriculture/Veterinary Medicine**

Environmental Science and Policy: Environment & Agriculture, Environmental Economics, Environmental Restoration, Soil, Water, & Land Resources, and Wildlife Resources & Conservation.

Environmental Science and Technology: Concentrations in Ecological Technology Design, Environmental Health, Soil and Watershed Science, or Natural Resources Management.

Plant Sciences: Horticulture and Crop Production, Landscape Management, Plant Sciences, Turf and Golf Course Management, and Urban Forestry

General Agricultural Sciences

Landscape Architecture

Natural Resources Management: Environmental Education/Park Management; Land and Water Resource Management; and Plant and Wildlife Resource Management

Nutrition and Food Science: Dietetics; Food Science; and Nutritional Science

Students graduating from the College must complete at least 120 credits with a grade point average of 2.0 in all courses applicable toward the degree. Requirements of the major and supporting areas are listed under individual program headings in the Departments, Majors and Programs section of this site.

Advising

Each student in the College is assigned a faculty advisor to assist in selecting courses, accessing academic enrichment opportunities, and making strategic career decisions. Advisors normally work with a limited number of students and are able to give individual guidance. Both freshmen entering with a definite choice of curriculum and transfer students are assigned to departmental advisors for counsel and planning of all academic programs as soon as possible. Students have access to additional advising through their home department's undergraduate program office and through the college's student services office. AGNR Peer Mentors, academically talented and university-engaged upperclassmen, provide an additional advising resources for students in the college.

Specifics of advisor assignment are available in the undergraduate office of each department.

Departments and Centers

Undergraduate credit instruction is offered by the Departments of Animal and Avian Sciences (ANSC), Agricultural and Resource Economics (AREC), Environmental Science and Technology (ENST), Nutrition and Food Science (NFSC), and Plant Science and Landscape Architecture (PSLA). An additional major, Environmental Science and Policy (ENSP) is based and administered within the College of Agriculture and Natural Resources; it offers specializations advised within this college as well the colleges of Behavioral and Social Sciences, Chemical and Life Sciences, and Computer, Mathematical and Physical Sciences. Additional courses are provided through the 2-year certificate program in the Institute of Applied Agriculture.

Minors

Academic Minors provide students an opportunity to expand or complement their major by taking additional courses (15-24 credits) in a coherent field of study. Students interested in a minor should contact the undergraduate program office of the department offering the minor. Currently the following are approved minors (with the offering department in parentheses) in the college:

Agribusiness Economics (Agricultural and Resource Economics)

Environmental Economics and Policy (Agricultural and Resource Economics)

Resource and Agricultural Policy in Economic Development (Agricultural and Resource Economics)

Landscape Management (Plant Science and Landscape Architecture)

Soil Science (Environmental Science and Technology)

Living-Learning Programs

EcoHouse, a Living-Learning program for undergraduates interested in learning about and promoting innovative, ecologically-sound lifestyles. Information is available through the Environmental Science and Policy Program and through Department of Resident Life (www.resnet.umd.edu or email to reslife@umd.edu).

The college also sponsors, through its Environmental Science and Policy Program, the Environment, Technology and Economy curriculum in College Park Scholars. Admission to College Park Scholars is a selective and by-invitation. (For further information, see Undergraduate Studies, College Park Scholars Program in the Colleges and Schools section of this site).

Specialized Academic Programs

The Institute of Applied Agriculture offers 60-credit certificate programs designed primarily for professional development. Majors offered include Agribusiness Management, Golf Course Management, Equine Business Management, Landscape Management, Ornamental Horticulture, and Turfgrass Management. Some two-year program students continue on in regular four-year programs in the college and several of the college's majors allow limited use of Institute courses in their programs.

Pre-Veterinary Medicine

Four-year degree students contemplating early admission to veterinary schools may choose the Combined Agriculture-Veterinary Medicine program. In this option, students complete basic science courses and University CORE in three years. They apply to veterinary schools in the Fall semester of the junior year, and, if they are granted early admission to an accredited school of veterinary medicine, the B.S. degree is awarded after completion of the first year of vet school. Details of the curriculum are found in the Animal Sciences major elsewhere in this catalog.

College Honors Program

Students may apply for admission to the College Honors program after completing 60 credits with a minimum 3.2 GPA in a program within the College. Honors students work with a faculty mentor and must take at least 12 credits of honors courses including a senior thesis. Interested students should contact their faculty advisor.

Approved Student Societies and Professional Organizations

Student participation in professional societies, clubs, and interest groups is extensive in the college, and students find opportunity for varied expression and growth in the following organizations:

AGNR Peer Mentors; AGNR Student Ambassadors; AGNR Student Council; Alpha Zeta; Alpha Gamma Rho; Animal Husbandry Club; Animal Sciences Graduate Association; College Park Environmental Group; Collegiate 4-H; Food and Nutrition Club; Landscape Architecture Student Association; MD Student Chapter of Golf Course Superintendents Association of America; Minorities in Agriculture, Natural Resources, and Related Sciences (MANRRS); Natural Resources Management Society; Sigma Alpha; Equestrian Club; UM Food Technology Club; and Veterinary Science Club.

Financial Assistance

A number of scholarships are available for students enrolled in the College of Agriculture and Natural Resources. These include:

AGNR Alumni Association Scholarship, AGNR General Scholarship, Arthur M. Ahalt Memorial Scholarship, Attorney General's Agricultural and Natural Resources Scholarship, Profess John Axley Memorial Scholarship, Eileen Barnett Scholarship, Beltsville Garden Club Scholarship, Bruce and Donna Berlage Scholarship, Chester F. Bletch Endowment, Bowie-Crofton Garden Club Scholarship, Frank D. Brown Memorial Scholarship, Joseph Byrd Foundation Scholarship, Jonas and Joan Cash Student Award Scholarship, Chapel Valley Landscape Honorary Scholarship, George Earle Cook, Jr. Scholarship, Patricia E. Criner & Linda Criner Bedate Scholarship, Ernest T. Cullen Memorial Scholarship, Jaime Dannemann Scholarship, R.F. Davis Memorial Scholarship, Jerry V. DeBarthe Memorial Scholarship, William R. DeLauder Scholarship Scholarship, Mylo S. Downey Memorial Scholarship, Equine Studies Scholarship, Explore AGNR Scholarship, James R. Ferguson Memorial Scholarship, Kenneth S. Fowler Memorial Endowed Scholarship, Thomas A. Fretz Agriculture and Natural Resources Scholarship, James & Sarah Goddard Memorial Scholarship, William D. Godwin Endowed Scholarship, Golf Course Builders of America Association Foundation Scholarship, Green Scholarship for Environmental Protection Scholarship, Manasses J. & Susanna Jarboe Grove Scholarship, Tom Hartsock Animal Management Scholarship, H. Palmer Hopkins Scholarship established by Charles W. Coale, Jr. & Ellen Kirby Coale, Charles & Judy Iager Scholarship, Land Grant Scholarship, James & Gertrude Leamer Scholarship, Donald Leishear International Travel Scholarship, Lee Majeskie Dairy Youth Scholarship, Maryland Greenhouse Growers Association Scholarship, James R. Miller Outstanding Senior Scholarship, John and Marjorie Moore International Agriculture & Natural Resources Student Travel Scholarship, James and Dessie Moxley Scholarship, Paul R. Poffenberger Memorial Scholarship, Jennifer Russo Memorial Scholarship, Ross & Pauline Smith Scholarship, J. Herbert Snyder Educational Scholarship, Southern States Cooperative Scholarship, Hiram I. Stine Memorial Scholarship, T.B. Symons Memorial Scholarship, TIC Gums Scholarship, Vansville Farmers Club Scholarship, A.V. Vierheller Scholarship, Siegfried Weisberger, Jr. Memorial Scholarship, Theo & Georgianna Miles Weiss Memorial Scholarship, and the William R. Winslow Scholarship.

The College is privileged to offer additional support in the form of interest-free loans through the Catherine Brinkley Loan Fund which are available to students who are residents of Maryland and progressing in programs within the College of Agriculture and Natural Resources.

Awards

The Agriculture and Natural Resources Alumni Chapter provides recognition each year for the Outstanding Senior in the two-year and four-year programs.

Research Units

Maryland Agricultural Experiment Station

The Maryland Agricultural Experiment Station (MAES) supports research conducted primarily by 120 faculty scientists located within the College of Agriculture and Natural Resources. Faculty use state-of-the-art facilities such as a new Research Greenhouse Complex and Environmental Simulator, as well as 10 off-campus research locations, for research in the science, business, policy, and practice of agriculture. MAES supports research that benefits consumers and producers alike; for example, our significant focus on the environment protects valuable natural resources such as the Chesapeake Bay. Undergraduate students also benefit from mentoring by MAES-supported faculty and instructional use of MAES facilities statewide.

University of Maryland Extension

The University of Maryland Extension educates citizens in the application of practical, research-based knowledge to critical issues in agricultural and agribusiness including aquaculture; natural resources and the environment; human development, nutrition, diet, and health; youth development and 4-H; and family and community leadership. The statewide program includes more than 180 faculty and support staff located in 23 counties, the City of Baltimore, four regional centers, and the University of Maryland's College Park and Eastern Shore campuses. In addition, more than 15,000 volunteers and citizens in Maryland give generously of their time and energy.

Center for Food Safety and Security Systems (CFS^3)

The **Center for Food Safety and Security Systems** (CFS^3) provides world-class research, education and outreach on issues related to food and water defense, safety and protection. Housed in the Department of Nutrition and Food Science, this new center will provide additional opportunity for students to become involved in issues of significance for homeland security. For information on CFS^3, please see agresearch.umd.edu/CFS3/index.cfm or call 301-405-0773.

Harry R. Hughes Center for Agro-Ecology, Inc.

The **Harry R. Hughes Center for Agro-Ecology, Inc**. is a private, non-profit 501 (c) 3 organization affiliated with the University of Maryland. The Center brings together diverse interests from the agricultural, forestry, and environmental communities for the purpose of retaining Maryland's working landscapes and the industries they support while protecting and improving the health of the Chesapeake Bay and its tributaries. For further information see agroecol.umd.edu/or call at 410-827-6202.

Joint Institute For Food Safety and Nutrition

The **Joint Institute For Food Safety and Nutrition** (JIFSAN), established between the US FDA and the University of Maryland in 1996, is a jointly administered research and education program. For information on JIFSAN, see www.jifsan.umd.edu/ or call 301-405-8382.

Northeastern Regional Aquaculture Center

The **Northeastern Regional Aquaculture Center** (NRAC) is one of five Regional Aquaculture Centers established by the U. S. Congress for the United States. Funded by the USDA, and representing 12 states and the District of Columbia, NRAC develops and sponsors cooperative regional research and extension projects in support of the aquaculture industry in the northeastern United States. For further information see www.nrac.umd.edu/ or call 301-405-6085.

Student Engagement and Service Units

Virginia-Maryland Regional College of Veterinary Medicine, Maryland Campus

College of Agriculture and Natural Resources
1202 Gudelsky Veterinary Center, 301-314-6830
www.vetmed.vt.edu

The Virginia-Maryland Regional College of Veterinary Medicine is operated by the University of Maryland and the Virginia Polytechnic Institute and State University. Each year, 30 Maryland and 50 Virginia residents comprise the entering class of a four-year program leading to a Doctor of Veterinary Medicine (DVM).

The first three years are given at Virginia Polytechnic Institute and State University in Blacksburg, Virginia. The final year of instruction is given at several locations, including the University of Maryland, College Park.

A student desiring admission to the college must complete the pre-veterinary requirements and apply for admission to the professional curriculum. Admission to this program is competitive, and open to all Maryland residents. All Maryland residents' applications are processed at the College of Veterinary Medicine, Maryland Campus, University of Maryland, College Park.

Institute of Applied Agriculture (Two-Year Program)
College of Agriculture and Natural Resources
Glori Hyman, Acting Director
2123 Jull Hall, 301-405-4685
E-mail: iaa@umd.edu
www.iaa.umd.edu/

The Institute of Applied Agriculture (IAA) awards academic certificates in Agribusiness Management, Equine Business Management, General Ornamental Horticulture, Golf Course Management, Landscape Management, and Turfgrass Management. As a two-year program, the IAA has a separate admission policy. Upon completion of the program, students are welcome to transfer to the University of Maryland, College Park; University of Maryland University College; and other schools.

For more information about the IAA, its admissions procedures, and requirements, contact the Institute of Applied Agriculture, 2123 Jull Hall, University of Maryland, College Park, MD 20742-2525.

School of Architecture, Planning, and Preservation

1298 Architecture Building, 301-405-8000

www.arch.umd.edu
arcinfo@umd.edu for general information and requests
archadvise@umd.edu for undergraduate advising questions
www.lep.umd.edu for information on applying to the Limited Enrollment Program as a freshman or internal transfer student and to see the gateway requirements for Architecture
www.transferadvising.umd.edu for transfer advising questions

Dean: Garth Rockcastle
Associate Dean(s): John Maudlin-Jeronimo, Qing Shen
Assistant Dean(s): Ingrid Farrell

Architecture Program
Director: Madlen Simon
Assistant Director: Courtney Miller Bellairs
Professors: M. Bell, R. Etlin (Dist Univ Prof), S. Hurtt, G. Rockcastle, T. Schumacher, R. Vann
Associate Professors: C. Bovill, R. Eisenbach, A. Gardner, I. Gournay, B. Kelly, M. Simon
Assistant Professors: M. Ambrose, H. Koliji, L.D. Quiros Pacheco, I. Williams, B.D. Wortham-Galvin
Professors of the Practice: G. Bowden, C. Frisone, P. Noonan
Senior Lecturers: C. Miller Bellairs
Lecturers: M. al Khalil, L. Escobal, C. Lostritto, A. Pressman, M. Ramirez, R. Schneck
Professors Emeriti: W. Bechhoefer, R. Bennett, K. DuPuy, G. Francescato, J. Hill, R. Lewis, J. Loss., F. Schlesinger

The School of Architecture, Planning, and Preservation offers a four-year undergraduate program leading to the Bachelor of Science degree in architecture. The School offers graduate programs leading to the professional degrees of Master of Architecture, Master of Historic Preservation, Master of Community Planning, and Master of Real Estate Development. In addition, joint professional degrees and certificates are offered. The School offers a post-professional Master of Science in Architecture degree and a Ph.D. in Urban and Regional Planning and Design. Students graduating with the undergraduate major in architecture typically require two years to complete the curriculum leading to the professional degree in architecture.

Students receive rigorous and comprehensive instruction from a faculty whose members are active in professional practice or research. Many faculty members have distinguished themselves across the professional spectrum and represent different approaches to architectural design. Their individual areas of expertise include architectural design and theory, history, architectural archaeology, technology, urban design and planning, and historic preservation. Visiting critics, lecturers, and the Kea Distinguished Professor augment the faculty; together they provide students with the requisite exposure to contemporary realities of architectural design.

The B.S. degree in architecture will qualify graduates to pursue a career in a number of fields, such as construction, real estate development, public administration, or historic preservation, or to continue in graduate work in professional fields such as architecture, urban planning, historic preservation, landscape architecture, or law. The program offers design studios and electives in drawing and visual representation leading some of our students to pursue advanced degrees in graphic design, interior design, fashion design, exhibition design and other creative fields.

Special Advantages and Facilities

The school is housed in a modern building providing design workstations for each student, a 300 seat auditorium, and seminar and classroom facilities. The Great Space, an atrium at the center of the School, is the location for collaborate projects, design reviews, critiques, and a variety of events that that bring the architecture program together. Facilities include a well-equipped woodworking and model shop, computer labs, digital output and digital fabrication. The Architecture Library, one of the finest in the nation, offers convenient access to a current circulating collection of more than 24,000 volumes, 6,000 periodicals, and an extensive selection of reference materials. Rare books and special acquisitions include a collection relating to international expositions and the 11,000-volume National Trust for Historic Preservation Library. The Elizabeth D. Alley Visual Resources Collection includes a reserve collection of 500,000 slides on architecture, landscape architecture, urban planning, architectural science, and technology as well as audio-visual equipment for classroom and studio use.

Summer programs include travel to Rome, Paris, Turkey, Great Britain, and other countries. Students may earn direct credit doing hands-on restoration work and by attending lectures by visiting architects, preservationists, and scholars.

Admission Requirements

www.lep.umd.edu for information on applying to the Limited Enrollment Program
www.transferadvising.umd.edu for transfer advising questions

Architecture is a Limited Enrollment Program (LEP). See www.lep.umd.edu for information on Limited Enrollment Programs and a link to Architecture. All students must meet the requirements for admission to the LEP by applying for a Review at approximately 45 credits.

Freshman Admission. Students with the most competitive records from high school gain direct admission to the Undergraduate Architecture Program through the University Admissions Office. Early application is strongly recommended due to limited space in the program. Admitted freshmen have access to the necessary advising through their initial semesters to determine if architecture is an appropriate major for their interests and abilities.

Freshmen who are admitted to architecture must apply for a review of their progress at the end of their third semester, typically 45 credits. To meet the provisions of the review, these students must demonstrate their ability to complete the following:

- Fundamental Studies CORE requirements
- Distributive Studies CORE requirements
- ARCH 170, 225, 226, and 242 with a grade of 3.0 or higher in each course (students are advised to repeat courses if they do not receive the required grade)
- MATH 220, PHYS 121 **and one of the courses** listed below** with a minimum grade of 2.0 in each and an overall minimum grade point average of 2.67 in all three (students are advised to repeat courses if they do not receive the required grade)

**** Students must take one of the courses below to complete the Mathematics and the Sciences Distributive Studies CORE requirement:**

- BSCI 205 (3) Environmental Science (LS)
- GEOG 140 (3) Coastal Environments (PS)
- GEOL 120 (3) Environmental Geology (PS)
- GEOL 123/METO 123/GEOG 123 (3) Causes and Implications of Global Change (PS)
- PHYS 122 (4) Fundamentals of Physics II (PL)

Students may be enrolled in ARCH 226 and completing their distributive studies contemporaneous with the review process during their fourth semester. A minimum cumulative GPA of 2.00 in all college level coursework is also required. In addition, the review will include an assessment of two letters of recommendations, transcripts, an essay, and a portfolio, the nature of which is specified by the School. Please contact the School of Architecture, Planning, and Preservation at 301-405-8000 for a Review Process Application, detailed portfolio requirements and deadlines or visit www.arch.umd.edu.

Note: Students are admitted to the School during the Fall semester only.

Transfer Admission Requirements. New transfer students, as well as students already enrolled on campus who wish to change majors to architecture, may also apply for the Review Process. Admission to transfer students is very competitive due to limited space and varies from year to year. To meet the provisions of the process, transfer applicants must demonstrate their ability to complete the following:

- Fundamental Studies CORE requirement
- Distributive Studies CORE requirement

- ARCH 170, 225, 226, and 242 with a grade of 3.0 or higher in each course (students are advised to repeat courses if they do not receive the required grade)

- MATH 220, PHYS 121 and one of the courses** listed below with a minimum grade of 2.0 in each and an overall minimum grade point average of 2.67 in all three (students are advised to repeat courses if they do not receive the required grade)

** Students must take one of the courses below to complete the Mathematics and the Sciences Distributive Studies CORE requirement:

- BSCI 205 (3) Environmental Science (LS)
- GEOG 140 (3) Coastal Environments (PS)
- GEOL 120 (3) Environmental Geology (PS)
- GEOL 123/METO 123/GEOG 123 (3) Causes and Implications of Global Change (PS)
- PHYS 122 (4) Fundamentals of Physics II (PL)

Students may be enrolled in ARCH 226 and completing their distributive studies contemporaneous with the review process during their fourth semester. A minimum cumulative GPA of 3.00 or above in all college level coursework is also required. In addition, the review will include an assessment of two letters of recommendations, transcripts, an essay, and a portfolio, the nature of which is specified by the School. Please contact the School of Architecture, Planning, and Preservation at 301-405-8000 for a Review Process Application, detailed portfolio requirements and deadlines, or visit www.arch.umd.edu. Note: Many outstanding transfer candidates apply to the Review Process for admission. Completion of the above requirements does not guarantee admission into the Limited Enrollment Program.

Note: Students are admitted to the School during the Fall semester only.

Appeals. Students who are denied admission as a freshman and feel that they have extenuating circumstances may appeal in writing to the Office of Undergraduate Admissions, Mitchell Building. Students denied admission at the 45 credit review may appeal in writing directly to the Director of Architecture, School of Architecture, Planning and Preservation. For further information, contact the Counselor for Limited Enrollment Programs at 301-314-8385.

Recruitment

arcinfo@umd.edu for general information and requests related to the undergraduate and graduate programs archadvise@umd.edu for undergraduate advising questions
www.lep.umd.edu for information on applying to the Limited Enrollment Program as a freshman or internal transfer student
www.transferadvising.umd.edu for transfer advising questions

All pre-college students and families are strongly encouraged to attend a Visit Maryland Day college session offered at various times during each Fall semester - see www.umd.edu. A detailed presentation of the Program is followed by a tour of the building during each of these more formal sessions. Informal tours of the School are offered during term time on Monday, Wednesday and Friday at 1pm. Visitors have an opportunity to meet with an Undergraduate Advisor at 1:30 on each tour day. Consult www.arch.um www.arch.umd.edu for information on tours and summer tour hours (hours may vary). Open Houses for students admitted to the Architecture Program take place during the Spring Semester.

Transfer students who have not yet applied/accepted a place at UMCP should contact the Pre-transfer Advising Unit at www.transferadvising.umd.edu for advice on proceeding toward a major and a smooth transition. If done in advance, this will help to maximize the number of courses that will transfer and apply as an architecture pre-requisites (see www.lep.umd.edu. See the B.S. in Architecture curriculum and additional information at www.arch.umd.edu and specifically at http://arch.umd.edu/architecture/academics/degree_programs/BS_ARCH.pdf. Transfer students may review the Transfer Credit Center's website for information on courses that will transfer to UMCP *www.tce.umd.edu*

Students within the University who wish to apply to the Architecture Program are invited to meet with an Undergraduate Advisor during term time for advice on pre-requisites and the Review Process for admission as a transfer student.

For additional questions about recruitment contact Courtney Miller Bellairs, Assistant Director, Architecture Program. cmillerb@umd.edu

Undergraduate Degree Requirements/Degree Options

In the first two years of college, directly admitted students and those seeking to transfer into the School of Architecture, Planning and Preservation should adhere to the following curriculum:

		Credits
CORE/ELECT	General Education (CORE) and Electives	30
UNIV100	The Students in the University	1
ENGL101	Introduction to Writing (CORE)	3
MATH220	Elementary Calculus I (CORE)	3
ARCH170	Introduction to the Built Environment (CORE)	3

PHYS121	Fundamentals of Physics I (CORE)	4
ARCH225	History of World Architecture I	3
ARCH226	History of World Architecture II	3
ARCH242	Drawing I	3
	One from the following:	3
BSCI205	Environmental Science (LS)	
GEOG140	Coastal Environments (PS)	
GEOL120	Environmental Geology (PS)	
GEOL123+	Causes and Implications of Global Change (PS)	
PHYS122	Fundamentals of Physics II (PL)	
	Total Credits	**56**

+GEOL 123 is also offered as METO123 and as GEOG123

Basic CORE requirements are fulfilled in the first 2 years, while Advanced CORE requirements are satisfied after students have completed 60 credits.

If admitted after completing 56 credits, students are expected to complete the following requirements for a total of 120 credits:

	Third Year	**Credits**
ARCH227	History of World Architecture III	3
ARCH400	Architecture Studio I*	6
ARCH410	Architectural Technology I	4
ARCH401	Architecture Studio II	6
ARCH411	Architectural Technology II	4
ENGL391	Advanced Composition	3
ELECT	Directed Electives	3
CORE	Core Requirements	3
	Total	**32**
	Fourth Year	
ARCH402	Architecture Studio III	6
ARCH412	Architectural Technology III	4
ELECT	Directed History of Architecture Elective**	3
ARCH403	Architecture Studio IV	6
ARCH413	Architectural Technology IV	4
ELECT	Directed Electives	6
CORE	CORE Requirements	3
	Total	**32**
	Total Credits	**120**

**Courses are to be taken in sequence as indicated by Roman numerals in course titles.*

****Directed Architecture history courses*:***

ARCH420	History of American Architecture
ARCH422	History of Greek Architecture
ARCH423	History of Roman Architecture
ARCH433	History of Renaissance Architecture
ARCH434	History of Modern Architecture
ARCH435	History of Contemporary Architecture

Advising

Entering students are advised by the Office of Undergraduate Advising located in the School's Main Office. Advising is mandatory for all undergraduate architecture majors each semester. Students must meet with an academic advisor to discuss their academic plan and course selection. Students can make an appointment for advising by contacting the School office (301-405-8000) or by signing up for an appointment at the Main Office front desk. Students should contact the advising office via the front desk or archadv archadvise@umd.edu if an appointment needs to be changed or a question answered. Some walk-in appointments may be available. Student may use the archadvise@umd.edu email at any time. Students should always include their full name, UID and contact information in any email correspondence. The advising office will be closed during certain critical weeks during the semester when advisors need to focus on their own academic deadlines. The Main Office front desk will have information on these closures.

Approved Student Societies and Professional Organizations

The Architecture Student Assembly represents the student body. Assembly members are elected from undergraduate and graduate classes. Representatives attend Faculty Meetings, serve on committees, and organize the Architecture Program Retrospective at the end of each semester.

The School of Architecture, Planning, and Preservation sponsors a chapter of the American Institute of Architecture Students (AIAS), the national association for architecture students. The AIAS chapter sponsors a variety of activities including an annual Career Fair, Beaux Arts Ball, field trips, conferences, workshops other events throughout the academic year.

The Emerging Green Builders is the student organization dedicated to promoting sustainability. Members organize exhibits, a public lecture, a series of lunchtime talks, and other activities.

Financial Assistance

Many financial awards are offered to freshman upon admission. Any questions about financial aid for freshman admits should be directed to the office of Admissions and the Office of Student Financial Aid.

Each year, the School of Architecture, Planning and Preservation offers a number of merit-based scholarships to qualifying undergraduate students. Many are offered to students participating in study abroad programs. Interested students are encouraged to apply for these in early Spring. Information is available at www.arch.umd.edu. Please note that most of these scholarships are reserved for students in the studio sequence of the program.

The Office of Student Financial Aid (OFSA) administers all types of federal, state, and institutional financial assistance programs and, in cooperation with other University offices, participates in the awarding of scholarships to deserving students. For more information, visit: **www.financialaid.umd.edu.** Freshmen and sophomores are strongly encouraged to visit the OFSA early in their tenure at the University of Maryland to determine any scholarships they may be eligible for in the following years.

Research Units

National Center for Smart Growth Research and Education
1112 Preinkert Fieldhouse, College Park, 301-405-6788
www.smartgrowth.umd.edu/
Dr. Gerritt Knaap

The National Center for Smart Growth Research and Education is a non-partisan center for research and leadership training on Smart Growth and related land use issues nationally and internationally. Founded in 2000, the National Center for Smart Growth is a cooperative venture of four University of Maryland schools: Architecture, Planning and Preservation, Public Policy, Agriculture and Natural Resources, and Engineering. The mission of the Center is to bring the diverse resources of the University of Maryland and a network of national experts to bear on issues in land development, resource preservation and urban growth -- the nature of our communities, our landscape and our quality of life -- through interdisciplinary research, outreach and education, thereby establishing the University as the national leader in this field.

COLLEGE OF ARTS AND HUMANITIES (ARHU)

1102 Francis Scott Key Hall, 301-405-2088
www.arhu.umd.edu
Dean: James Harris

The College of Arts and Humanities embraces a heterogeneous group of disciplines that study human experience, thought, expression and creativity. All value the development of critical thinking, fluent expression in writing and speech, sensitivity to ethical and aesthetic issues, and a complex understanding of history and culture. Departments and programs in Arts and Humanities prize vigorous intellectual debate in a diverse community. While they have strong individual identities, they are also involved in interdisciplinary studies. Thus students will find, for example, courses in the Department of English that approach literature in its historical contexts, courses in the Department of History that adopt feminist perspectives, courses in the Department of Art History and Archaeology that study African politics, and so on.

Further examples of the special opportunities available to students in this richly variegated college include an exceptional visual resource center in Art History and Archaeology, the English Department's computer-based writing classroom, and an AT&T Foreign Language Classroom. Additionally, students may add an international experience to their undergraduate education by participating in an ARHU-sponsored study abroad program in Nice, Alcala, Sevilla, or Genoa or an exchange program in the United Kingdom, Singapore, or Japan. The educational vistas open to students in Dance, Music, and Theatre are enhanced enormously by the Clarice Smith Center for the Performing Arts, which houses those three departments. Students may also participate in one of the College's five living-learning programs: Honors Humanities, College Park Scholars in the Arts, College Park Scholars in Culture of the Americas, Jimenez-Porter Writers' House, and Language House (see below).

Admission Requirements

Students wishing to major in one of the creative or performing arts are encouraged to seek training in the skills associated with such an area prior to matriculation. Students applying for entrance to these programs may be required to audition, present slides, or submit a portfolio as a part of the admission requirements.

Recruitment
1120L Francis Scott Key Hall, 301-405-2096
www.arhu.umd.edu/admissions
Admissions Coordinator: J. Darius Greene

The College's Admissions Coordinator serves as a resource and contact person for prospective students interested in Arts and Humanities degrees, and as a liaison to the Office of Undergraduate Admissions.

Undergraduate Degree Requirements/Degree Options

The College of Arts and Humanities offers the degree of Bachelor of Arts in the following fields of study:

American Studies: www.amst.umd.edu

Arabic Studies: www.arabic.umd.edu

Art: www.art.umd.edu

Art History and Archeology: www.arthistory-archaeology.umd.edu

Central European, Russian, and Eurasian Studies: www.ceres.umd.edu

Chinese Language and Literature:

www.chinese.umd.edu

Classics and Classical Humanities: www.classics.umd.edu

Classical Humanities *(see Classics)*

Communication: www.comm.umd.edu

Dance: www.dance.umd.edu

English Language and Literature: www.english.umd.edu

French Language and Literature: www.french.umd.edu

Germanic Studies: www.german.umd.edu

Greek *(see Classics)*

History: www.history.umd.edu

Italian Language and Literature:

www.italian.umd.edu

Japanese Language and Literature:

www.japanese.umd.edu

Jewish Studies: www.jewishstudies.umd.edu

Latin *(see Classics)*

Latin and Greek *(see Classics)*

Linguistics: www.ling.umd.edu

Music: www.music.umd.edu

Students majoring in Music may pursue a Bachelor of Music degree

Persian Studies: www.persian.umd.edu

Philosophy: www.philosophy.umd.edu

Romance Languages: www.romancelanguages.umd.edu

Russian: www.russian.umd.edu

Spanish and Portuguese: www.spanish.umd or www.portuguese.umd.edu

Theatre: www.theatre.umd.edu

Women's Studies: www.womensstudies.umd.edu

The College also offers certificate programs in Women's Studies, East Asian Studies, and Latin American Studies.

Major Requirements

- All students must complete a program of study consisting of a major (a field of concentration) and sometimes supporting courses as specified by one of the academic units of the College. No program of study shall require in excess of 60 semester hours.
- A major shall consist, in addition to the lower-division departmental prerequisites, of 24 to 40 hours, at least 12 of which must be in courses numbered 300 or 400 and at least 12 of which must be taken at the University of Maryland, College Park.
- A major program sometimes requires a secondary field of concentration (supporting courses). The nature and number of these courses are determined by the major department.
- No grade lower than C may be used to fulfill major or supporting course requirements. No course for the major or support module may be taken Pass-Fail.
- Students should consult the unit in which they will major for specific details; certain units have mandatory advising.

Graduation Requirements

The following College requirements apply only to students earning Bachelor of Arts degrees from the College of Arts and Humanities. These requirements are in addition to or in fulfillment of campus and departmental requirements. For information concerning the Bachelor of Music in the School of Music, students should consult a Music advisor.

Students who double major in ARHU and another college on campus must complete the College requirements in ARHU of foreign language to the intermediate level, and 45 hours of upper-level credit.

All Arts and Humanities freshmen (excluding students in College Park Scholars, Honors Humanities, or University Honors) must take *UNIV 101, The Student in the University and Introduction to Computer Resources*, during their first semester on campus.

Distribution: To encourage advanced mastery of material, a minimum of 45 of the total of 120 semester hours must be upper-level work (i.e., courses numbered 300-499). A majority of the 45 credits will be earned in the fulfillment of requirements for the major and CORE.

Foreign Language: To expand students' understanding of other cultures in an increasingly global society, the College of Arts and Humanities requires its majors to complete the intermediate level of a foreign language. Learning a second language produces deep knowledge of cultural as well as linguistic differences while opening pathways for common understanding.

All students majoring in ARHU must pass the designated level of a foreign language with a grade of 2.0 or better. Please consult an ARHU advisor for a list of the required course sequences.

Students already beyond the required level and wishing to be exempt from the requirement must document their proficiency when they enter ARHU in one of the following ways:

1. High school transcript showing level 4 of a foreign language;
2. For students with native proficiency, exam administered by American Council on the Teaching of Foreign Languages passed at the advanced mid (AM) level. For more information, please see an advisor in the ARHU Office of Student Affairs, or call 301-405-2108.

Advising

Freshmen and new transfer students have advisors in the Arts and Humanities College Office of Student Affairs (301-405-2108) who assist them in the selection of courses. Students must see the departmental advisor for the major. All first-year students (both freshmen and transfers), juniors who have completed 65-75 credits, and seniors who have completed 90-105 credits, have mandatory advising in both the College and the department. For further information about advising, students should call the ARHU Office of Student Affairs, 301-405-2108.

Internships

Several departments within Arts and Humanities have well-established internship options. For more information on internships taken for academic credit, students should contact their departmental academic advisor. Typically, students must be in good academic standing and in their junior or senior year to complete a for-credit internship. They usually complete an application and attach a current academic transcript, and the experience usually lasts for one semester. In addition to the site experience, students write an analysis of the experience in conjunction with a faculty member in their department. Internships with literacy programs and with the Maryland General Assembly are available through the English Department, 301-405-3827. For assistance in locating an internship site, visit the University Career Center at 3100 Hornbake Library, South Wing or do a search on the website www.careercenter.umd.edu

Certification of High School Teachers

A student who wishes certification as a secondary education teacher in a subject represented in this college is encouraged to speak with an advisor in Education Curriculum and Instruction (1207 Benjamin Bldg.) to discuss the different paths available for certification. A student may pursue secondary teacher certification as an undergraduate with a double major in a content area and secondary education, pursue the five-year integrated master's program which allows for the content major as an undergraduate and completion of certification and graduate degree requirements in a fifth year, or apply to the one-year intensive master's plus certification program.

Departments and Centers

Academic Computing Services
1111 Francis Scott Key Hall, 301-405-2104
www.ARHU.umd.edu/technology
Assistant Dean: Kathleen R. Cavanaugh

Academic Computing Services (ACS) supports the use of technology by faculty, staff, and students in the College of Arts and Humanities. ACS provides desktop support services for faculty and staff, support for the use of technology to support teaching and learning, and classroom technology support services.

The Art Gallery
1202 Art-Sociology Building, 301-405-2763
www.artgallery.umd.edu
Director: Scott D. Habes

The Art Gallery presents exhibitions, lectures, film series, residencies, and publications focusing on contemporary art and visual culture. Opportunities for museum training and arts management experience are available to students through intern and work-study positions.

The Center for Renaissance and Baroque Studies
0139 Taliaferro Hall, 301-405-6830
www.crbs.umd.edu
Founding Director: S. Schoenbaum (1927-96)
Director: Adele Seeff
Associate Director: Karen Nelson

The Center for Renaissance and Baroque Studies promotes teaching and research in the Renaissance and Baroque Periods in all disciplines of the arts and humanities. The Center sponsors a vast array of programs, including annual interdisciplinary symposia, special lectures and performances, conferences, summer institutes, and a volume series of symposia proceedings published by the University of Delaware Press in conjunction with Associated University Presses. The *Attending to Early Modern Women* symposia series, recognized nationally and internationally as **the** major scholarly event in the field of early modern women's studies, is hosted by the Center triennially. The Center publishes *Early Modern Women: An Interdisciplinary Journal*, the only peer-reviewed journal devoted to the interdisciplinary and global study of women and gender from 1400-1700.

The Center offers a variety of programs for off-campus constituencies of teachers and their students. Serving as Director of Outreach for the College of Arts and Humanities, the Center Director supervises a range of community outreach programs including the University of Maryland/Northwood High School Collaboration and the Seminars for Teachers professional development program for area educators. Other Center outreach programs are designed to provide access to recent research in Renaissance Studies, and include the Shakespeare Monologue Festival and Shakespeare Camp, both of which target middle school students. The Crossing Borders/Breaking Boundaries summer institute brings school teachers to campus for an interdisciplinary exploration of arts-integration practices.

David C. Driskell Center for the Study of the African Diaspora
1214 Cole Student Activities Building, 301-405-6835
email: driskellcenter@umd.edu
www.driskellcenter.umd.edu
Executive Director: Robert E. Steele

The David C. Driskell Center for the Study of the Visual Arts and Culture of African Americans and the African Diaspora at the University of Maryland, College Park, celebrates the legacy of David C. Driskell -- Distinguished University Professor Emeritus of Art, Artist, Art Historian, Collector, and Curator -- by preserving the rich heritage of African American visual art and culture. Established in 2001, the Center provides an intellectual home for artists, museum professionals, art administrators, and scholars of color, broadening the field of African diasporic studies. The Driskell Center is committed to collecting, documenting, and presenting African American art as well as replenishing and expanding the field.

Consortium on Race, Gender, and Ethnicity (CRGE)
1208 Cole Student Activities Bldg., 301-405-2931
www.crge.umd.edu
Director: Ruth E. Zambrana
Assistant Director: Laura A. Logie

The Consortium on Race, Gender and Ethnicity (CRGE) is a University-wide initiative promoting 1) intersectional theory, pedagogy and research, 2) mentoring and training of faculty and graduate students of color, and 3) thoughtful and dynamic interdisciplinary collaboration. CRGE's work explores the intersections of race, gender, ethnicity and other dimensions of inequality as they shape the construction and representation of identities, behavior and complex social relations. Over the past ten years, CRGE has become a national leader in issues of diversity and inclusion and has worked diligently to lead the way in innovative intersectional interdisciplinary research via colloquium, research interest groups, seed grant funding of junior faculty, and collaborative partnerships. Our work has become crucial to the fulfillment of the UM mission of achieving excellence in areas of scholarship, pedagogy and community service.

Language Media Services
1204 Jiménez Hall, 301-405-4925; Fax: 301-314-9752
Email: langweb@umd.edu
www.languages.umd.edu/lms
Janel Brennan-Tillmann, Coordinator of Language Instructional Technology
Jeff Maurer, Multimedia Technician

Language Media Services (LMS) is a support unit within the School of Languages, Literatures and Cultures which provides audio visual equipment and multimedia support for faculty, staff and students. LMS provides first tier support and training for faculty teaching in the five technology enhanced classrooms located in Jimenez Hall, the mobile audio lab and the computer classroom. Services for faculty include equipment and video/DVD loan, foreign language program recording, scanning of instructional documents, training on equipment use, tape duplication and conversion, and digitization of audio materials. Services for students include audiotape and digital audio file distribution and an independent study space.

FOLA
1109 Jiménez Hall, 301-405-4046
www.languages.umd.edu/fola
Coordinator: Naime Yaramanoglu

The FOLA (Foreign Language) Program enables qualified students with high motivation to acquire a speaking knowledge of a number of foreign languages not offered in regular campus programs. While instruction is basically self-directed, students meet regularly with a native-speaking tutor for practice sessions to reinforce what has already been covered through the individual use of books and audio tapes or CDs. Final examinations are administered by outside examiners who are specialists in their fields.

Living-Learning Programs

Honors Humanities
1103 Wicomico Hall, 301-405-6992
www.honorshumanities.umd.edu

email: honorshumanities@umd.edu
Director: Professor Peter Mallios

Entering freshmen participate by invitation in Honors Humanities, a two-year living/learning program. Honors Humanities is the University of Maryland's premier undergraduate program for academically talented students who have intellectual ambitions in the humanities and arts or a desire to develop their education on a liberal arts foundation. The program is organized around a special humanities curriculum and a final independent research or creative project (The Keystone Project) that a student designs and executes with the guidance of a faculty mentor. Honors Humanities provides students with stimulating seminars, exciting academic friendships, a lively home base in Wicomico Hall, and opportunities to take advantage of the intellectual, cultural, and artistic riches of the Washington, D.C. region. Upon successful completion of the program, students earn a citation in Honors Humanities, and this prestigious citation is entered upon their university transcripts.

College Park Scholars
CPS in the Arts: Professor Harold Burgess
CPS in Cultures of the Americas: Professor Sangeeta Ray
www.scholars.umd.edu

The College of Arts and Humanities co-sponsors cross-disciplinary College Park Scholars programs in Cultures of the Americas and in Arts. These two-year programs provide exciting living-learning environments in specially-equipped residence halls (Centreville and Bel Air respectively). Students with strong interests in these areas meet in weekly colloquia with faculty, and, in the Arts program, with student teachers as well, to pursue creative and intellectual endeavors. Field trips, invited speakers, hands-on workshops, and the yearly staged Arts Fair on Maryland Day in Spring stimulate creativity and the sense of togetherness while forming a community of learners and teachers in the Arts Program. Cultures of the Americas focuses on the peoples, cultures and histories of North and South America, allowing students to think comparatively. Students engage these topics not only in the colloquia but by also taking a specially designed three credit course the second semester of the freshman year. Besides academic readings, invited lectures, local field trips, presentations, and community service, the program sponsors a 4-6 day trip to a rich cultural site in the Americas the final semester. Both Scholars programs give students the opportunity to study with their peers while being in close contact with their faculty advisors experiencing a small college environment.

Jiménez-Porter Writers' House
0111 Dorchester Hall, 301-405-0671
www.writershouse.umd.edu
Director: Johnna Schmidt

The Jiménez-Porter Writers' House (JPWH) is a living and learning program open to all majors. The program was conceived and developed primarily for upper-division students, but will consider applications from academically talented incoming freshmen who have a solid focus on creative writing. Located in Dorchester Hall, the Writers' House creates a campus-wide literary center to study creative writing in its cross-cultural and multilingual dimensions. Participants live in a close community of students who share an interest in creating stories, poems, plays, and imaginative non-fiction. Students work with visiting writers, publish a literary magazine, attend special readings and colloquia, produce an annual literary festival, and receive notation upon successful completion of the program. Class sizes are small, and include one-on-one faculty advising sessions. Admission to the Writers' House is competitive, with only forty to fifty students living and writing together each year. Applications can be obtained by contacting the director, or by visiting www.writershouse.umd.edu. Final deadline for admission every year is March 1.

Language House
0107 St. Mary's Hall, 301-405-6996
www.languages.umd.edu/lh
Program Director: Dr. Phoenix Liu
PhoenixL@umd.edu

The Language House Immersion Program was the first living-learning program on campus for students wishing to immerse themselves in the study of a foreign language and culture. A total of 100 students live in one of ten clusters (Arabic, Chinese, French, German, Hebrew, Italian, Japanese, Persian, Russian or Spanish), which are housed in 19 apartments in St. Mary's Hall. Students must commit to speaking their target language as they prepare meals, study and socialize together, do household chores, etc. Faculty liaisons work with students in each of the language clusters, and a student mentor, a native speaker of the language, assists students in the immersion environment. The goal of language immersion is achieved through activities organized by the mentors, a language-learning computer lab, an audio-visual multi-purpose room, and foreign television programs received via satellite.

College Honors Program

Most departments in the College of Arts and Humanities offer Departmental Honors Programs (DHP). DHPs are upper-division programs within the individual academic units. Students enrolled in Departmental Honors work independently with faculty members in subjects of special interest, develop and deepen their research skills, and, in the process, earn an even stronger degree.

Students must have a cumulative grade point average of at least 3.0 to be admitted. For further information about individual Departmental Honors Programs and policies, consult with departmental advisors.

Phi Beta Kappa
Consult the description of Phi Beta Kappa in chapter 4.

COLLEGE OF BEHAVIORAL AND SOCIAL SCIENCES (BSOS)

2148 Tydings Hall, 301-405-1697
www.bsos.umd.edu
advisingcenter@bsos.umd.edu
Assistant Dean(s): Katherine Pedro Beardsley, Jennifer Dumas, Ann Holmes, Kim Nickerson

The College of Behavioral and Social Sciences is comprised of a diverse group of disciplines and fields of study all of which emphasize a broad liberal arts education as the foundation for understanding the environmental, social, and cultural forces that shape our world. At the heart of the behavioral and social sciences is the attempt to understand human beings, both individually and in groups. Disciplines in the behavioral and social sciences use approaches that range from the scientific to the philosophical, from the experimental to the theoretical. Integral to all the disciplines, however, is the development and application of problem solving skills, which in combination with other academic skills, enable students to think analytically and to communicate clearly and persuasively. Students interested in human behavior and in solving human and social problems will find many exciting opportunities through the programs and courses offered by the College of Behavioral and Social Sciences.

Undergraduate Degree Requirements/Degree Options

- Each student must complete a minimum of 120 hours of credit with at least a 2.0 cumulative grade point average. Courses must include the credits required in the University's general education requirements (CORE) and the specific major and supporting course and grade requirements of the programs in the academic departments offering bachelor's degrees.
- Students in BSOS must complete Math and English by 60 credits.
- Students must complete 15 upper level credits in the student's final 30 credits.
- All students are urged to speak with an academic advisor in their major and an advisor in the College Advising Office at least two semesters before graduation to review their academic progress and discuss final graduation requirements.

Advising

The BSOS Advising Center coordinates undergraduate advising and maintains student records for BSOS students. Advisors are available to provide information concerning University requirements and regulations, transfer credit evaluations, and other general information about the University by appointment from 9 a.m. to 5 p.m Monday through Friday. Undergraduate advisors for each undergraduate major are located in the department offices. These advisors are available to assist students in selecting courses and educational experiences in their major area of study consistent with major requirements and students' educational goals.

Departments and Centers

The College is composed of the following departments, each offering a major program that leads to the Bachelor of Arts or the Bachelor of Science degree, as appropriate:

Department of African American Studies*

Department of Anthropology

Department of Criminology and Criminal Justice

Department of Economics

Department of Geography

Department of Government and Politics

Department of Hearing and Speech Sciences

Department of Psychology

Department of Sociology

In addition, the College is a major contributor to the Environmental Science and Policy Program and sponsors several of its areas of concentration.

*The Department of African American Studies also offers an undergraduate certificate requiring 21 semester hours of course work (see Undergraduate Certificate Programs in Chapter 7).

Minors

Several departments within the College of Behavioral and Social Sciences sponsor minors. See individual department listings for information. Approved minors include:

- Black Women's Studies (Departments of African American Studies and Women's Studies - see Women's Studies)
- Geographic Information Science (Department of Geography)
- Hearing and Speech Sciences (Department of Hearing and Speech Sciences)
- International Development and Conflict Management (Department of Government and Politics)
- Neuroscience (Departments of Psychology and Biology)
- Terrorism Studies (College of Behavioral and Social Sciences - see below)

Minor in Terrorism Studies

The Terrorism Studies program focuses on exploring the origins and motivations of terrorism based on theoretical understandings of individual and group behavior. Students also explore the impacts of the threat of terrorism on individuals and communities as well as strategies for preventing, deterring, mitigating, and responding to terrorist threats. For more information about the minor, please visit:www.start.umd.edu

Students are required to take the following three courses:

- **BSOS 330: Terrorist Motivations and Behaviors** (3 credits). This course explores theories explaining the formation of terrorist groups and the motivations behind terrorist behavior, building upon theories from social psychology, sociology, political science, criminology, and history. This course draws heavily from historical examples as well as current examples of international and domestic terrorist groups around the world.
- **BSOS 331: Responses to Terrorism** (3 credits). This course examines the impact of terrorism on groups and individuals and explores how communities have prepared and ideally should prepare in the face of potential terrorist threats. This course draws from anthropology, criminology, economics, history, political science, social psychology, and sociology.
- **BSOS 332: The Practice of Terrorism Studies** (5 credits). This seminar serves as the capstone for the minor program. As part of the course, students complete an approved internship or conduct a relevant, original research project. Students also meet regularly with an instructor to learn and apply academic and professional analytical tools relevant to the study of terrorism. The course includes visits from guest speakers working in the field of terrorism studies, and students participate in a terrorism-prevention tabletop exercise.

In addition to the three new courses, students must take one 3-credit course on research methods, to be drawn from courses in any discipline, including: African-American Studies; Applied Mathematics and Scientific Computation; Biological Sciences; Criminology and Criminal Justice; Communications; Economics; Civil Engineering; Electrical Engineering; Fire Protection Engineering; Family Studies; Geography; Government and Politics; History; Health; Latin American Studies; Psychology; Sociology; Statistics; and Survey Methodology.

To satisfy the final requirement, students must enroll in one 3-credit elective related to terrorism studies. START staff compile a list of courses being offered each semester that satisfy the elective requirement. Students are also encouraged to enroll in courses from the Washington, DC consortium to satisfy the elective requirement, thereby drawing on the unique, existing resources present throughout the Washington, DC metropolitan area.

Living-Learning Programs

CIVICUS
0107 Somerset Hall, 301-405-8759
Director: Dr. Sue Briggs

CIVICUS is a two-year living and learning program in the College of Behavioral and Social Sciences. This academic citation program is centered on five themes of civil society: citizenship, leadership, community service-learning, community building in a diverse society, and scholarship. About 130 diverse and energetic CIVICUS Associates take a common core of classes, live together in Somerset Hall, and participate in civic, community service, experiential, and other activities and projects on and off campus.

CIVICUS was founded on the assumption that to be engaged members of civil society we have an obligation to be aware of the world outside of the classroom and to act upon issues that affect the world in which we live. Therefore, our courses and activities are intricately linked with each other and our communities. CIVICUS Associates enrich their academic work and explore career opportunities by volunteering with non-profit organizations and governmental agencies and programs, creating their own community service projects, and interacting with faculty and community leaders. They are among the most involved students at Maryland. CIVICUS Associates complete a Capstone internship at the University or in the D.C. metropolitan area.

Selected students from all majors are invited to participate in the CIVICUS Living and Learning Program when they apply to the university as first year students, based on their letters of recommendation, involvement in high school and the community, admissions essays, and academic transcripts. CIVICUS looks to invite students who will continue to strengthen and broaden their leadership skills within the campus and local communities.

For more information, please visit: www.CIVICUS.umd.edu

College Park Scholars, International Studies
1104 Centreville Hall, 301-405-9304
Faculty Director: Dr. James Glass

One of twelve College Park Scholars living-learning programs, the International Studies Program brings together undergraduate students from a variety of disciplines who share an interest in global issues, politics, and events. Each entering class of approximately sixty-five students takes courses together during the freshman and sophomore years. The majority of International Studies Scholars reside in Centreville Hall.

International Studies was one of the original four College Park Scholars programs launched in 1994, sponsored by the College of Beh Behavioral and Social Sciences (BSOS) and the Department of Government and Politics (GVPT). The Faculty Director and the Teaching Assistants all have their roots in the Department of Government and Politics.

The International Studies Program welcomes students who wish to live and learn together and who have an interest in exploring international political, economic, and cultural issues. Our program offers an opportunity to build global understanding and global awareness through academic and experiential learning.

For more information, please visit: www.scholars.umd.edu/is/

Specialized Academic Programs

Atlantic Coast - Social, Behavioral and Economic Sciences Alliance for Graduate Education and the Professoriate (AC-SBE Alliance)
Director: Kim J. Nickerson
301-405-7599
knickerson@bsos.umd.edu
www.acsbe.org

The AC-SBE Alliance is comprised of the University of Maryland at College Park, the University of North Carolina at Chapel Hill, Howard University, the University of Florida, and the University of Miami. The goals of the AC-SBE Alliance are to increase the number of Under-Represented Minority (URM) students receiving Ph.D.'s in SBE disciplines and to increase the number of URMs entering the SBE professoriate. The AC-SBE Alliance recruits and prepares undergraduates to pursue doctoral degrees, assists students in the transition from Bachelor to Ph.D. programs, assists graduate students in completing their Ph.D.s, and prepares graduate students for success. The College of Behavioral and Social Sciences (BSOS) is the leading body at the UMD campus for this particular alliance. BSOS also collaborates with the UMD Graduate School and the University of Maryland System's Promise Alliance for Graduate Education and the Professoriate (AGEP). Through these relationships, students can participate in graduate training seminars and professional development activities. In addition, BSOS organizes an annual Summer Research Initiative for undergraduates in order to achieve the goals set by the AC-SBE Alliance.

College Honors Program

Undergraduate honors are offered to graduating students in the departments of African American Studies, Anthropology, Criminology and Criminal Justice, Economics, Geography, Government and Politics, Psychology, and Sociology.

Dean's Academic Scholar. To be named a Dean's Academic Scholar is the highest academic award that a BSOS student can earn in the College. Dean's Scholars are those graduating seniors who have completed 60 credits at the University of Maryland, College Park and have maintained a minimum cumulative grade point average of 3.8. A student who has been found responsible of a violation of academic integrity is not eligible.

Dean's List. Any student who has passed at least 12 hours of academic work under the regular grading method in the preceding semester, without failure of any course, and with an overall average grade of at least 3.5, will be placed on the Dean's List. The Distinguished Dean's List consists of students who have completed successfully a minimum of 12 credit hours in a semester with a

4.0.

Honor Societies. Students who excel in their academic discipline may be selected for membership in an honorary society. Honoraries for which students in BSOS are chosen include:

- Alpha Kappa Delta -- Sociology
- Alpha Phi Sigma -- Criminal Justice
- Gamma Theta Upsilon -- Geography
- Omicron Delta Epsilon -- Economics
- Pi Sigma Alpha -- Political Sciences
- Psi Chi -- Psychology

Approved Student Societies and Professional Organizations

Students who major in the Behavioral and Social Sciences have a wide range of interests. The following is a list of student organizations in the disciplines and fields of the Behavioral and Social Sciences:

- Anthropology Student Association
- Criminal Justice Student Association
- Economics Association of Maryland
- Geography Club
- Maryland Neurosciences Society
- National Student Speech-Language and Hearing Assoc.(NSSLHA), MD Chapter
- Pre-Medical Society
- Sociology Collective
- The Society of African American Studies

For more information about these student organizations or starting a new student group, please contact the Office of Campus Programs, Adele H. Stamp Student Union, 301-314-7174.

Financial Assistance

The college offers several scholarships to its students (see below). Each scholarship has eligibility criteria. Scholarship information and applications are made available each fall semester. Scholarship awards are granted for the following fall semester. The college offers the following scholarship awards:

- Murray E. Polakoff Scholarship Award for Academic Excellence
- Irv & Micki Goldstein Scholarship Award for Commitment to Service
- Katherine Pedro & Robert S. Beardsley Scholarship Award for Outstanding Leadership
- Jean & Robert Steele Scholarship Award for First Generation Students
- BSOS Future Alumni Scholarship Award for Financial Need (60 or more credits)

For more information, please visit: www.bsos.umd.edu

Scholarships are sometimes given at the department level. Check with your departmental advisor or your director of undergraduate programs for more information regarding scholarship opportunities that may be available to you.

The National Scholarship Office at the University of Maryland provides information on nationally competitive scholarships at the undergraduate (and graduate) level. For more information, please visit:www.scholarships.umd.edu

The Office of Student Financial Aid (OFSA) administers all types of federal, state, and institutional financial assistance programs and, in cooperation with other University offices, participates in the awarding of scholarships to deserving students. For more information, visit: www.financialaid.umd.edu

Research Units

The College of Behavioral and Social Sciences sponsors several special purpose, college-wide research centers. These centers include: The Center for Substance Abuse Research; The National Consortium for the Study of Terrorism and Responses to Terrorism; and The Public Safety Training and Technology Assistance Agency. These interdisciplinary centers often offer internships and a selected number of undergraduate research assistant opportunities for interested students. These research experiences offer excellent preparation for future graduate study and/or job opportunities in the private and public sectors. Additionally, the college offers computing services through its Office of Academic Computing Services.

Center for Substance Abuse Research (CESAR)
4321 Hartwick Rd. Ste. 501, College Park, MD 20740

301-405-9770
www.cesar.umd.edu
Director: Dr. Eric Wish

Established in 1990, CESAR is a research unit sponsored by the College of Behavioral and Social Sciences. CESAR staff gather, analyze, and disseminate timely information on issues of substance abuse and monitor alcohol- and drug-use indicators throughout Maryland. CESAR aids state and local governments in responding to the problem of substance abuse by providing the above-stated information, as well as technical assistance and research. Faculty members from across campus are involved with CESAR-based research, creating a center in which substance abuse issues are analyzed from multidisciplinary perspectives. Students obtain advanced technical training and hands-on experience through their involvement in original surveys and research.

Maryland Population Research Center (MPRC)
0124N Cole Student Activities Building, University of Maryland, College Park, MD 20742
301-405-6403
www.popcenter.umd.edu
Director: Dr. Sandra Hofferth

The Maryland Population Research Center (MPRC) is a multidisciplinary center dedicated to population-related research and housed in the College of Behavioral and Social Sciences (BSOS) at the University of Maryland, College Park. Our primary goal is to draw together leading scholars from diverse disciplines to support, produce, and promote population-related research.

The cross-disciplinary research interests of our faculty allow the MPRC to continually grow and make a unique contribution to the field of population studies. The MPRC's members include faculty from the departments of African American Studies, Agricultural and Resource Economics, Anthropology, Criminology and Criminal Justice, Economics, Family Studies, Geography, Human Development, the Joint Program in Survey Methodology, the School of Public Policy, and Sociology.

National Consortium for the Study of Terrorism and Responses to Terrorism (START)
3300 Symons Hall, University of Maryland, College Park, MD 20742
301-405-6600
www.start.umd.edu
Director: Dr. Gary LaFree

The National Consortium for the Study of Terrorism and Responses to Terror (START) is a U.S. Department of Homeland Security Center of Excellence, tasked by the Department of Homeland Security's Science and Technology Directorate with using state-of-the-art theories, methods, and data from the social and behavioral sciences to improve understanding of the origins, dynamics, and social and psychological impacts of terrorism. START, based at the University of Maryland, College Park, aims to provide timely guidance on how to disrupt terrorist networks, reduce the incidence of terrorism, and enhance the resilience of U.S. society in the face of the terrorist threat.

Office of Academic Computing Services (OACS)
0221 LeFrak Hall, University of Maryland, College Park, MD 20742
301-405-1670
www.oacs.umd.edu
Director: Dan Navarro

The College believes strongly that the study of behavioral and social sciences should incorporate both quantitative and computational skills. Consequently, curricula in most departments require some course work in statistics, quantitative research methods, and information technology. The BSOS Office of Academic Computing Services provides undergraduate students in the College with both facilities and staff assistance to satisfy a broad range of computer-related needs. OACS operates five computer classrooms and a specialized graphics lab that offer a wide variety of popular software, color and black-and-white printing, and both text and graphics scanning. Undergraduate students are also encouraged to take advantage of OACS's learning resources, including free computer and statistics training courses, help documentation, a library of computer-related texts and free access to research data.

Public Safety, Training and Technology Assistance (PSTTP)
9001 Edmonston Rd. Ste. 300, Greenbelt, MD 20770
301-489-1700
www.hidta.org
Director: Thomas H. Carr

Established in 1994, the Public Safety, Training and Technology Assistance Program (PSTT) (formerly the Washington/Baltimore HIDTA) is co-sponsored by theCollege of Behavioral and Social Sciences and the Office of National Drug Control Policy. This program is funded by Congress to help coordinate and fund the fight against drug-related crime and to treat drug-addicted criminal offenders. HIDTA efforts integrate prevention and law enforcement at the community level to reduce the involvement of high-risk youth in drug trafficking careers and criminal behavior. HIDTA also works with private industry and government to form partnerships geared toward the development of commercial software for use by law enforcement, criminal justice, treatment and regulatory agencies. The Washington/ Baltimore HIDTA employs a multi-disciplinary approach that incorporates law enforcement, treatment/criminal justice and prevention through a regional strategy that includes all these disciplines. Faculty members from across campus are involved with HIDTA-based research, and students obtain advanced technical training and hands-on experience through their involvement in data collection, original surveys, geo-mapping and research.

THE ROBERT H. SMITH SCHOOL OF BUSINESS (BMGT)

1570 Van Munching Hall, 301-405-2286
www.rhsmith.umd.edu
Dean: Dr. G. Anandalingam
Associate Dean(s): Patricia Cleveland

The Robert H. Smith School of Business is an internationally recognized leader in management education and research for the digital economy. The faculty are scholars, teachers, and professional leaders with a commitment to superior education in business and management, specializing in accounting, finance, information systems, operations management, management and organization, marketing, and supply chain management. The Smith School is accredited by AACSB International - The Association to Advance Collegiate Schools of Business, the premier accrediting agency for bachelor's, master's and doctoral degree programs in business administration and accounting, www.aacsb.edu.

A student in the Smith School of Business, selects a major(s) in one of the following curricula: (1) Accounting; (2) Finance; (3) General Business; (4)Information Systems; (5)International Business; (6) Logistics, Transportation, & Supply Chain Management; (7) Marketing; or (8) Operations Management. Upper-division BMGT programs are offered at College Park and at the Universities at Shady Grove in Montgomery County. For details on the majors offered at Shady Grove visit www.rhsmith.umd.edu/undergrad/shadygrove.html.

Admission Requirements

See "Admission Requirements and Application Procedures" chapter for general LEP admissions policies.

Freshman Admission
Admission to the BMGT degree programs is competitive. A limited number of freshmen who demonstrate outstanding talent will be admitted directly to their BMGT major of choice (e.g. Accounting, Finance, etc.). Admission will be on a space available basis. All students are urged to apply early. All students admitted directly to BMGT as freshmen must demonstrate satisfactory progress (2.00 cumulative GPA or better) plus completion of Gateway courses (BMGT 220, BMGT 230, ECON 200 or 201, and MATH 220 or 140 with a "C" or better) in the semester they reach 45 credits (excluding AP and ESL), at which time they will be reviewed in order to continue in the BMGT major.

Students not directly admitted to the Smith School of Business as freshman can be admitted to the Division of Letters & Sciences, with some of these students enrolling in the Markets and Society program. These students can apply for admission to Business by the semester in which 60 credits are completed. (See Transfer Admission below)

Transfer Admission for Students from On or Off Campus
Students who began at UMCP or a Maryland System School in Spring 2004 through Spring 2005 were grandfathered under the Spring 2001 admission standards, through Spring 2007. At this time all students must meet the current admission standards, detailed below.

All students applying for admission to BMGT as transfer students, whether internal transfers already enrolled at UMCP or external transfer students entering the university for the first time, will be subject to competitive admission for a limited number of spaces in the BMGT program at each program location.

To be considered for admission, applicants must complete the following requirements:

- Minimum 3.0 cumulative GPA (preferred, may vary based upon the applicant pool)
- Minimum junior standing: 60 credits earned
- Completion of 50% of lower-level university CORE requirements (Note: ECON 200 and 201 satisfy lower-level SB CORE requirements and MATH 220 or 140 satisfies lower-level MS CORE requirements)
- Completion of the following Gateway courses, all with "C" or better:

  BMGT 220 and 221: Accounting
  ECON 200 and 201: Micro and Macro Economics

ENGL 101
MATH 220 or 140: Calculus
BMGT 230*or BMGT 231#

* The following courses are approved substitutes for BMGT230: BIOM301, ECON321, EDMS451, GEOG305, PSYC200, and SOCY201.

# The following courses are approved substitutes for BMGT 231: ENEE324, ENME392, or STAT400

- Co-curricular involvement, leadership experience and honors and awards will also be considered in the admission decision. Students are strongly encouraged to submit with their applications a resume and letter detailing their accomplishments and experience.

Application Deadlines for Transfer Students: Complete applications and all supporting documents must be received no later than:

Fall Semester:	1st business day of June (Priority Deadline)
	1st business day of August (Final Deadline)
Spring Semester:	1st business day of December (Priority Deadline)
	5th business day of January (Final Deadline)

Note 1: For external transfer applicants in the Spring, all transcripts and supporting documentation must be received by the 10th business day of January.

Note 2: Please submit completed applications to the Attn: LEP Coordinator, Office of Undergraduate Admissions, Mitchell Building, University of Maryland, College Park, MD 20742-5235.

Freshmen who begin study in another major at College Park who would have met the direct BMGT admission standards from high school have until the last day of instruction in the first semester of their freshmen year at College Park to change their major to BMGT.

Appeals to this Policy: Appeals to this policy may be filed with the Office of Undergraduate Admissions, on the ground floor Mitchell Building. Such appeals will require documentation of unusual, extenuating, or special circumstances.

Statement of Policy on Transfer of Credit from Community Colleges
It is the practice of the Smith School of Business to consider for transfer from a regionally accredited community college only the following courses in business administration: an introductory business course, business statistics, introduction to computing (equivalent to BMGT 201), or elementary accounting. Thus, it is anticipated that students transferring from another regionally accredited institution will have devoted the major share of their academic effort below the junior year to the completion of basic requirements in the liberal arts. A total of 60 semester hours from a community college may be applied toward a degree from the Smith School of Business.

Other Institutions
The Smith School of Business normally accepts transfer credits from regionally accredited four-year institutions. Junior- and senior-level business courses are accepted from colleges accredited by the Association to Advance Collegiate Schools of Business (AACSB). Junior- and senior- level business courses from other than AACSB-accredited schools are evaluated on a course-by-course basis to determine transferability.

The Smith School of Business requires that at least 50 percent of the business and management credit hours required for a business degree be earned at the University of Maryland, College Park.

Undergraduate Degree Requirements/Degree Options

he university confers the following degrees: Bachelor of Science (B.S.), Master of Business Administration (M.B.A.), Master of Science (M.S.), and Doctor of Philosophy (Ph.D.). Information concerning admission to the M.B.A. or M.S. program is available at www.rhsmith.umd.edu.

Undergraduate Program
The undergraduate program recognizes the need for professional education in business and management based on a foundation in the liberal arts. In addition, the program's internationally integrated curriculum prepares students to be effective and responsible managers in today's dynamic business environment.

A student in business and management selects a major in one of several curricula: (1) Accounting; (2) Information Systems: Specialization Business; (3) Finance; (4) General Business; (5) International Business; (6) Operations Management; (7) Marketing;

(8) Supply Chain Management.

Summary of Bachelor of Science Degree Requirements (all curricula)
At least 45 hours of the 120 semester hours of academic work required for graduation must be in business and management subjects. A minimum of 58 hours of the required 120 hours must be in 300- or 400-level courses. In addition to the requirement of an overall cumulative grade point average of 2.0 (C average) in all university course work. Effective Fall 1989, all business majors must earn a 2.0 or better in all required courses, including Economics, Mathematics, and Communication. Electives outside the curricula of the School may be taken in any department of the university, if the student has the necessary prerequisites.

		Credits
	Freshman-Sophomore School Requirements	
BMGT220	Principles of Accounting I	3
BMGT221	Principles of Accounting II	3
ECON200	Principles of Microeconomics	4
ECON201	Principles of Macroeconomics	4
	One from:	
MATH220	Elementary Calculus I	3
MATH140	Calculus I	4
	One from:	
BMGT230	Business Statistics	3
BMGT231	Statistical Models for Business	3
	One from:	
COMM100	Foundations of Speech Communication	3
COMM107	Speech Communication	3
COMM200	Critical Thinking and Speaking	3
	Total	**23-24**
	Junior-Senior School Requirements	
BMGT301	Introduction to Information Systems	3
BMGT340	Business Finance	3
BMGT350	Marketing Principles and Organization	3
BMGT364	Management and Organizational Theory	3
BMGT367	Career Search Strategies in Business	1
BMGT380	Business Law	3
BMGT495	Business Policies, OR	3
BMGT495H	Business Policies (Honors)	
ECON	Economics - see below	3-6
	Total	**22-25**

Economics Requirements
3-6 credits of approved upper-level economics courses are required by the Smith School of Business. The specific requirements for each major are listed with the majors' specific requirements.

Major Requirements

In addition to the Smith School of Business Bachelor of Science requirements listed above, generally another 18-24 credits are required for each major. See individual major listings in chapter 7.

A Typical Program for the Freshman and Sophomore Years

	Credits
Freshman Year	
CORE and/or Electives	9
ENGL101 or equivalent	3
MATH *(depending on placement)**	3
First Semester Total	**15**

CORE and/or Electives	9
COMM100, 107 or 200	3
MATH or BMGT230/231*	3
Second Semester Total	**15**
Sophomore Year	
CORE and/or Electives	6
BMGT220 *(Prereq Sophomore Standing)*	3
ECON200	4
MATH or BMGT230/231*	3
Third Semester Total	**16**
CORE and/or Electives	6
ECON201	4
BMGT221 *(Prereq BMGT220)*	3
BMGT230 **or** 231 **or** Elective	3
Fourth Semester Total	**16**

**See Freshman-Sophomore School requirements for appropriate math and statistics courses.*

Advising

General advising for students admitted to the Smith School of Business is available Monday through Friday in the Office of Undergraduate Programs, 1570 Van Munching Hall, 301-405-2286. It is recommended that students visit this office each semester to ensure that they are informed about current requirements and procedures. Transfer students entering the university can be advised during spring, summer, and fall transfer orientation programs. Contact the Orientation Office for further information, 301-314-8217.

Specialized Academic Programs

The Smith School offers innovative special programs through its Undergraduate Fellows Program. The Fellows program offers a series of special academic programs,or tracks which will create small communities of scholars within the larger Smith School community. Each specialized Fellows program combines opportunities for action learning and professional development with rigorous in-depth academic coursework focused on cutting edge issues affecting 21st century business.

Co-curricular activities are a key component of the Fellows program. Field trips and internships, international study trips and exchanges, speaker series, dinners, retreats and competitions will foster leadership skills and contribute to your personal and professional growth. Alumni involvement is an important aspect of Fellows programming, with Smith alumni and corporate partners contributing their time, talents and experience through sponsorship and participation in events and activities. For more information on each of the Smith Fellows Programs please see the following information and corresponding links. For information on all our Fellows Programs visit http://unet.rhsmith.umd.edu and click on the Fellows Program tab.

Freshman Fellows: The Freshman Fellows track provides enriched opportunities for all of our newly admitted Smith freshmen students from the moment they step on campus for the new Freshman Fellows Orientation, followed by "Business Week" a yearly tradition to kick off the academic year with a series of social and professional events and activities. Freshman Fellows Program consists of four (4) required courses, which are completed over a student's first four semesters, plus a portfolio of co-curricular activities. For more information, please visit http://unet.rhsmith.umd.edu and click on the Fellows Program tab.

International Fellows: A special group of Freshman Fellows, Smith International Fellows are students who declare dual degrees in business and foreign language. For more information on International Fellows, including information on your foreign language advisor, visit http://unet.rhsmith.umd.edu and click on the Fellows Program tab.

Accelerated Finance Fellows: The Accelerated Finance Fellows program is designed for freshmen with advanced standing who are sure they want to pursue a finance career. These students are interested in accelerating their finance coursework, and in taking additional finance courses-beyond what the major requires. These students have the potential to become "star" finance majors, courted by top finance recruiters. The emphasis of this program is on preparing students for a high profile career in finance. For more information, please visit http://unet.rhsmith.umd.edu and click on the Fellows Program tab.

Accounting Teaching Scholars: The Accounting & Information Assurance Department (AIA) offers this special program opportunity for undergraduate accounting students to serve as discussion leaders and teaching assistants for the beginning accounting courses, BMGT 220 & 221. Accounting teaching scholars earn a yearly stipend (depending on hours worked) while reviewing material in preparation for the CPA exam, and practicing organizational and delivery skills. A one-credit mentoring course is offered to prepare students for their roles as teaching assistants. For more information, please visit http://unet.rhsmith.umd.edu and click on the Fellows Program tab.

Business Process Fellows Program: The objective of the Business Process Fellows program is to develop excellence in operations management. Students will learn and practice business process methodologies and software tools used by leading edge companies and agencies to design and manage complex enterprises. For more information, please visit http://unet.rhsmith.umd.edu and click on the Fellows Program tab.

Design and Innovation in Marketing Fellows: The Design in Marketing Fellows Program bridges the gap between marketing research and theory and the realization of well-designed applications. The program curriculum and co-curricular activities are designed to produce business leaders who can make strategically sound and creative design decisions. This program is intendedly interdisciplinary, with mutual benefit to be gained by collaboration between marketing students and design students in developing creative business solutions. visit http://unet.rhsmith.umd.edu and click on the Fellows Program tab.

Emerging CFOs: This program is designed for students interested in corporate finance and investment banking. It is designed to go more in depth into corporate finance aspects of finance, and provide students with enhanced leadership and communication skills. For more information, please visit http://unet.rhsmith.umd.edu and click on the Fellows Program tab.

Entrepreneurship Fellows . The Entrepreneurship Fellows Program brings together talented Smith School students to create an entrepreneurial chemistry that will stimulate the creation and growth of new high-potential enterprises. The primary goal of the Entrepreneurship Fellows program is to have each student participate in launching a profitable business venture while still in school. This program is offered solely at the Smith School at Shady Grove campus (http://www.rhsmith.umd.edu/undergrad/shadygrove/). For more information on the Entrepreneurship Fellows Program, visit http://unet.rhsmith.umd.edu and click on the Fellows Program tab.

Financial Services Fellows: This program is designed for students interested in the financial services industry, including traditional banking (loan officer, personal banking officer) and the financial services industry (financial planners, personal investment managers). For more information, please visit http://unet.rhsmith.umd.edu and click on the Fellows Program tab.

Global Opportunities: Global Opportunities is a selective and reciprocal academic program for language and business students interested in the world of international business, who want to gain skills outside their majors and enhance their opportunities in the global business arena. Language majors complete 15 credits in business, while business majors complete 15 credits in a single foreign language, 9 credits of which must be at the 300-400 level. For information on the foreign language offerings, please visit: www.languages.umd.edu/. For more information on Global Opportunities, please visit http://unet.rhsmith.umd.edu and click on the Fellows Program tab.

Leadership Fellows: Begins Fall 2009. Leadership Fellows is an innovative and high quality academic program aimed at selecting and developing leadership talent for business. Students will participate in a 360-assessment with mentoring and feedback from faculty and student mentors, and develop a Leadership Development Plan as part of an action-learning practicum. For more information, please visit http://unet.rhsmith.umd.edu and click on the Fellows Program tab.

Lemma Senbet Investment Fund Fellows: This program is a year-long, advanced finance program available to undergraduate finance majors in their senior year. Twelve students are selected in the spring of their junior year to participate on the fund, two as portfolio managers and ten as equity analysts. The program provides the students with the opportunity to apply what they have learned in Finance classes to actual investment decisions, through researching real companies and managing a portfolio of real money, and through reviewing the results of the decisions they make. At the end of the year-long commitment, the Fund members will present their performance to Fund donors. For more information, please visit http://unet.rhsmith.umd.edu and click on the Fellows Program tab.

LTSCM Fellows: The Logistics, Transportation, & Supply Chain Management (LTSCM) Fellows Leadership Program offers students a unique opportunity for learning and community building both within the Smith School and with external LTSCM professionals. By combining classroom learning with opportunities in the professional community, LTSCM Fellows will have a unique opportunity to build knowledge of the LTSCM profession and create a foundation for a networked career. For more information, please visit http://unet.rhsmith.umd.edu and click on the Fellows Program tab.

Music Management Fellows: The objective of the Music Management Fellows program is to develop students' interests and capabilities in the specialized management functions involved in the business of music management, including music marketing and promotions, production and distribution, broadcasting, performance and production logistics in event and tour management, and funding and management of venues and institutions. Students will interact with and learn from experts in the field by participating in the design and production of recorded music, live events and programs, and through specialized clinics and internships focused on different genres and performance environments: Music & Entertainment; Performing Arts. For more information, please visit http://unet.rhsmith.umd.edu and click on the Fellows Program tab.

Quantitative Finance Fellows: The Quantitative Finance Fellows Program (formerly Financial Markets Fellows program) is for students interested in investments, and in particular in learning more about the software and hardware used in the financial services industry. For more information, please visit http://unet.rhsmith.umd.edu and click on the Fellows Program tab.

Quantitative Marketing Fellows: Quantitative marketing is an approach to marketing that relies on computer based models and statistical, econometric and data mining methods to understand and analyze why, which, when and how much products and services are being bought by consumers and firms. For more information, please visit http://unet.rhsmith.umd.edu and click on the Fellows Program tab.

QUEST (Quality Enhancement Systems and Teams): A collaborative partnership with the A. James Clark School of Engineering and the College of Computer, Mathematical and Physical Sciences, the QUEST program is an innovative three-year quality management program with a dynamic learning environment. Grounded in team-based courses led by an interdisciplinary faculty, the program offers students the opportunity to study integration of quality in the workplace while applying the knowledge and skill-set they have gained from their major in the field of engineering, business or computer science. For more information, please visit http://unet.rhsmith.umd.edu.

Research Fellows: Research Fellows is a one-year program offering students paid opportunities to work with one of our outstanding Smith Faculty members on their research. Research fellows complete up to a total of 250 hours/semester, which can be allocated as 18 hours/week for 14 weeks or some other set hours, to be established by the faculty project supervisor. Compensation is $5,000/year or $2,500/semester, depending upon hours worked. Research Fellows will present their work at the annual Research Day each spring. Minimum one-year commitment, may be renewed. For more information, please visit http://unet.rhsmith.umd.edu and click on the Fellows Program tab.

Smith Technology Fellows: ST Fellows perform a variety of duties, which may include serving as teaching assistants with technology-intensive classes, or as research assistants, executing targeted technology development projects for use in instruction or research, assisting faculty and others with targeted projects involving software such as Oracle or .NET. Some project assignments will require experience using specific software platforms and will provide technical support for courses, assist faculty with tutorials and demonstrations, and assist student teams in projects. Students working on projects which require specific technology skills will be eligible to attend vendor hands-on training sessions. Projects will generally be defined as one semester in duration but could extend over the academic year. Compensation for work on projects is $10/hour, with projects ranging from 200-400 hours, which can be spread over a semester or a year. Projects may be renewable for additional semesters. For more information, please visit http://unet.rhsmith.umd.edu and click on the Fellows Program tab.

Sports Management Fellows: The Sport Management Fellows program focuses on the worldwide enterprise of sport and the prominence of organized sports at every level in collegiate and professional sports environments, together with the significance of auxiliary industries in sports apparel and equipment, television contracts and other ancillary products and services. For more information, please visit http://unet.rhsmith.umd.edu and click on the Fellows Program tab.

STARS: The mission of the STARS program is to encourage and attract first generation and under represented students to the study of business, to prepare them for college, and to encourage them to make the University of Maryland their #1 choice. Once admitted, the program provides a supportive network for academic success leading to graduation, and then welcomes them back as alumni contributors to the Smith Community. The challenge is to identify and support outstanding students interested in studying business, and to work together with their schools and with various access programs to prepare for admission to college. To achieve this goal, Smith School undergraduates have developed a corps of peer-mentors who provide mentoring and academic support to high school students, as well as to students already admitted to the University of Maryland who seek admission to the Smith School. Student mentors participate in visits to high schools and work with sponsored college access programs. They visit high-school students at off-campus sites and host these students during campus visits and educational programs such as the annual High-School-to-College Workshops and Finance Field Day. A one-credit course in Intergroup Communication is being considered as a vehicle for building mentoring skills and coordinating volunteer activities. For more information, please visit http://unet.rhsmith.umd.edu and click on the Fellows Program tab.

Technology and Business Transformation Fellows Program: The Technology & Business Transformation fellows program aims to identify and train students who are passionate about leveraging the latest technologies for business as well as social transformation. This highly selective Fellows program will provide students the opportunity to interact with the faculty in small classes as well as collaborate with them on state-of-the art industry and research projects. For more information, please visit http://unet.rhsmith.udm.eduand click on the Fellows Program tab.

Other Special Programs outside of the Smith School's Fellows Program: In addition, Smith School students can incorporate other exceptional multidisciplinary learning opportunities as part of their degree programs. Programs like College Park Scholars (inclu (including Business, Society, and the Economy); Gemstone; and The Hinman Campus Entrepreneurship Opportunities (CEOs) programs join business undergraduates with those from other disciplines. Several of the programs mentioned above were formed through partnerships with other colleges or departments on campus.

College Honors Program

The Smith School Honors Fellows program, which is part of the Smith School's Fellows Program, offers students with superior academic achievements special opportunities and resources, including the opportunity to participate in cutting-edge research on business issues, and to graduate with honors. Students in the honors program take their upper-level BMGT core courses in small, seminar-style honors sections, which allow in-depth exploration of business topics in marketing, finance, management and organization, business law, and policy and strategy. The Smith School Honors Program provides both a non-thesis and a thesis option, in which students work on an original research project under the supervision of a Smith School faculty member. Admission to the Smith School Honors Program is competitive. Students are selected on the basis of the following requirements:

- Minimum 3.5 cumulative grade point average
- Minimum 45 credit hours earned
- Completion of all BMGT pre-requisite courses by the end of Spring semester:

  Principles of Accounting I and II: BMGT 220 and 221
  Business Statistics: BMGT 230 (or 231)
  Calculus: MATH 220 or 140
  Principles of Micro- and Macro- Economics: ECON 200 and 201

The application to the BMGT Honors program includes a personal essay and two letters of recommendation from faculty. The BMGT Honors application can be downloaded from the Smith School website: http://unet.rhsmith.umd.edu.

Admission to the Smith School Honors Fellows Program takes place once a year in the Spring semester. For more information, please visit http://unet.rhsmith.umd.edu and click on the Fellows Program tab.

Approved Student Societies and Professional Organizations

Student Professional Organizations
Students may choose to associate themselves with one or more professional organizations offered under the umbrella organization, Smith Undergraduate Student Association (SUSA). For more details, visit http://unet.rhsmith.umd.edu and click on the SUSA tab.

Awards

Scholarships
For details on available scholarships, please click on the scholarship tab at http://unet.rhsmith.umd.edu.

COLLEGE OF CHEMICAL & LIFE SCIENCES (CLFS)

1302 Symons Hall, 301-405-2080
www.chemlife.umd.edu
Dean: Norma Allewell
Associate Dean(s): Robert Infantino,Jr., Arthur Popper
Assistant Dean(s): Lisa Bradley-Klemko, Joelle Presson

Undergraduate Research and Internship Programs - Director: Katerina (Kaci) Thompson
Life Sciences College Park Scholars - Director Lee Helmen
Undergraduate Admissions Counseling and Recruitment - Coordinator: Eden M. Garosi
Health Professions Advising Office - Director: Wendy Loughlin
Undergraduate Biological Sciences Program at the Universities at Shady Grove - Director: Tom Stanton

The undergraduate degree programs in the College of Chemical and Life Sciences are:

- Chemistry
- Biochemistry
- Biological Sciences
- Environmental Sciences & Policy

The degree programs in the College of Chemical and Life Sciences prepare students for entry into the work force, matriculation in graduate school, and matriculation in professional schools. The Chemistry and Biochemistry degree programs are housed in the Department of Chemistry and Biochemistry. The Biological Sciences degree program is jointly offered by the departments of Biology, Cell Biology and Molecular Genetics, and Entomology. Biological Sciences students may study broadly in General Biology, or specialize their upper level course work in Cell Biology and Genetics, Ecology and Evolution, Microbiology, or Physiology and Neurobiology. A double major program with the College of Education provides certification to teach High School Chemistry or Biology. The College grants degrees in the Biodiversity and Conservation specialization in the Environmental Science and Policy major.

Opportunities for Research
Opportunities are available across the College and off-campus for undergraduates to participate in basic and applied research projects, and research experience is encouraged for all undergraduate students. Off campus opportunities include National Institutes of Health, Food and Drug Administration, National Institute of Standards and Technology, The Smithsonian, the National Zoo, private biotechnology firms, and many others. The College has special offerings in all of the campus-wide academic programs such as Gemstones, Honors, College Park Scholars, and Freshman Learning Communities.

Admission Requirements

Students applying for admission should consult the University Admissions section in Chapter 1 for general information about admissions requirements and recommended courses. Students who plan to enter an undergraduate program in the College of Chemical and Life Sciences should include the following subjects in their high school program: at least two units in the biological sciences and physical sciences (chemistry, physics); and four units of mathematics -- algebra, geometry, pre-calculus and calculus. Math and science coursework at the honors/AP/IB level is strongly encouraged.

For further information about admissions to the College of Chemical and Life Sciences, contact Eden M.Garosi, Coordinator, Undergraduate Admissions Counseling and Recruitment, 301-314-8375; egarosi@umd.edu and chemlife-inquiries@umd.edu.

Undergraduate Degree Requirements/Degree Options

See entries under individual degree programs in Chemistry and Biochemistry, Biological Sciences, and Environmental Sciences.

Advising

Students in the College of Chemical and Life Sciences have substantial advising support throughout their academic career. Each semester each student is assigned an advisor and is required to meet with that advisor before registering for the next semester classes. Advisors include the professional advising staff housed in the College office and faculty members in the various academic advisors. Students have access to a range of advising expertise to guide them through their academic and professional careers. Questions about advising should be directed to the Student Services Office, 1300 Symons Hall, 301-405-5820. Students interested in the health professions can find additional advising from the Health Professions Advising Office, 0129 Chemistry Bldg, 301-405-7805, www.prehealth.umd.edu .

Departments and Centers

The College of Chemical and Life Sciences is home to four academic departments. The **Chemistry Department** offers the undergraduate degrees in Chemistry and in Biochemistry. The undergraduate Biological Sciences Degree is a joint offering by the three Biological Sciences Departments. These are the **Biology Department**, the **Cell Biology and Molecular Genetics Department**, and the **Entomology Department**.

Minors

The College of Chemical and Life Sciences does not offer minors.

Living-Learning Programs

College Park Scholars Life Sciences
Director: Dr. Lee Hellman
Assistant Director: Ms. Becky Zonies 1119 Cumberland Hall, 301-405-0528

The College of Chemical and Life Sciences sponsors the College Park Scholars Life Sciences program for entering freshman who are admitted by invitation during the admissions process. Students meet weekly in colloquia with faculty where they learn more about the diverse areas of study in the life sciences. Scholars are also clustered in course sections which fulfill major and general education requirements. International travel-study course opportunities led by College faculty are available as a part of the program. Students create a community of living and learning in a specially-equipped residence hall.

Specialized Academic Programs

Joint Biomedical Research Program with the University of Maryland School of Medicine
Students may apply for the joint Biomedical Science Research Program between the Department of Medical and Research Technology (DMRT), University of Maryland School of Medicine, and theCollege of Chemical and Life Sciences. Students who have successfully completed 60 credits of prerequisite courses at the University of Maryland, College Park may be considered for the program. Beginning in the junior year within the UM School of Medicine, students will develop skills in a variety of biotechnology methodologies as well as become familiar with the operation of analytical instruments used in clinical laboratories, biomedical science, and biosafety and quality assurance issues. Interested students should call the DRMT Admissions Office at 410-706-7664.

College Honors Program

Students in the College of Chemical and Life Sciences participate in Gemstones, the University Honors program and College Park Scholars, and research-intensive departmental honors programs.

Departmental Honors
Students may apply to participate in research-based departmental honors programs in the each of the departments of the College. Based on the student's performance in research and defense of a written thesis, the department may recommend candidates for the appropriate degree with Departmental Honors or Departmental High Honors. Successful completion of departmental honors will be recognized on a student's academic transcript and diploma. Participation in the University Honors program is not required for entry into a departmental honors program. See departmental listings or consult with an academic advisor in the College for more information.

COLLEGE OF COMPUTER, MATHEMATICAL, AND PHYSICAL SCIENCES (CMPS)

3400 A.V. Williams, 301-405-2677
www.cmps.umd.edu
cmpsque@umd.edu (for CMPS advising questions)
Dean: Stephen Halperin
Associate Dean(s): Ronald L. Lipsman (Sr. Assoc. Dean), James M. Purtilo

Nationally recognized for our education, research, faculty and students, the College of Computer, Mathematical and Physical Sciences is a critical educational and scientific resource benefiting the region and the nation. The College offers every student a high-quality, innovative, and cross-disciplinary educational experience. Strongly committed to making studies in the sciences available to all, the College actively encourages and supports the recruitment and retention of women and minorities.

Our students have the opportunity of working closely with first-class faculty in state-of-the-art labs, both on and off campus, on some of the most exciting problems of modern science and mathematics. We have developed courses to reflect the evolving nature of IT subjects and the rapidly changing world of science and mathematics. As a new approach to undergraduate education, multiple tracks are offered within majors, including tracks for future teachers and tracks with an emphasis on computation.

Students participate in Departmental Honors programs, Corporate Scholars, the Gemstone program, Quest, and College Park Scholars. They apply their lab and classroom skills through internships at area companies. Excellent advising and career services are in place to help our undergraduates transition to graduate programs, public service, or private sector commerce. Our highly-skilled graduates pursue careers in a great many fields and professions.

Admission Requirements

All students who meet the admissions standards described in Chapter 1 of this catalog are invited to consider a major or a minor in one of the Bachelor of Science degree programs of the College. Applications of prospective freshmen and transfer students are evaluated by the Office of Undergraduate Admissions (www.uga.umd.edu). All current University of Maryland students in good academic standing are welcome to contact the CMPS Dean's Office at 301-405-2677 or cmpsque@deans.umd.edu.

Recruitment
3400 A.V. Williams 301-405-2677
www.cmps.umd.edu/undergraduate/prospective_students.htm
Assistant Director for Recruitment: Kim Ozga (ozga@umd.edu)

The College's Assistant Director for Recruitment serves as a resource and contact person for prospective students interested in bachelor degrees and also serves as a liaison to the Office of Undergraduate Admissions.

Undergraduate Degree Requirements/Degree Options

Graduation Requirements

1. A minimum of 120 semester hours with at least a C average is required of all Bachelor of Science degrees from the College.
2. Forty-three credit hours that satisfy the general education CORE program requirements of the University. In some instances, courses taken to satisfy these requirements may also be used to satisfy major requirements.
3. Major and supporting coursework as specified under each department or program.
4. The final 30 semester hours must be completed at College Park. Occasionally, the Dean may waive this requirement for up to 16 of the 30 credits cited. Such a waiver is considered only if the student already has 75 credits in residence.
5. Students must be enrolled in the program in which they plan to graduate by the time they register for the last 15 hours.

Advising

The Undergraduate Education Office, 3400 A.V. Williams Building, 301-405-2677, centrally coordinates advising and the processing and updating of student records. Inquiries concerning university regulations, transfer credit, Dean's Exceptions and other general information should be addressed to this office. Specific departmental information in relationship to majors is best obtained directly from academic departments. Each department in the College requires semester advising for registration and future course planning. Advisors in departments are available on walk-in and appointment basis. Students are also encouraged to contact the office by e-mail at cmpsque@umd.edu. Assistance is also available by phone at 301-405-2677.

Departments and Centers

The following departments, programs and research units are the principal components of the College:

Department of Astronomy
Department of Atmospheric and Oceanic Science
Department of Computer Science
Department of Geology
Department of Mathematics
Department of Physics
Applied Mathematics and Statistics, and Scientific Computation Program
Physical Sciences Program
Statistics Program
Center for BioInformatics and Computational Biology
Center for Nanophysics and Advanced Materials
Center for Scientific Computation and Mathematical Modeling
Earth System Science Interdisciplinary Center
Institute for Advanced Computer Studies
Institute for Physical Sciences and Technology
Institute for Research in Electronics and Applied Physics (joint with the College of Engineering)
Joint Quantum Institute
Maryland Biophysics Program
Materials Research Science and Engineering Center
Norbert Wiener Center for Harmonic Analysis and Applications

Degree Programs

The following Bachelor of Science (B.S.) degree programs are offered to undergraduates by the departments and programs of the College: Astronomy, Computer Engineering, Computer Science, Geology, Mathematics, Physics, and Physical Sciences. In addition, Geology sponsors one of the areas of concentration in the Environmental Science and Policy program.

Minors

The College offers Minors in the following areas:

Astronomy
Computer Science
Surficial Geology
Earth Material Properties
Earth History
Geophysics
Hydrology
Meteorology
Atmospheric Chemistry
Atmospheric Sciences
Mathematics
Actuarial Mathematics
Statistics
Physics

Minors in the College offer students in all disciplines the opportunity to pursue a structured program of study in a field outside their major. Each student who successfully completes a minor will have the accomplishment noted on their transcript. Consult departmental advisors and websites for further information. www.cmps.umd.edu/undergraduate/programs.htm

Living-Learning Programs

College Park Scholars
www.scholars.umd.edu
Science, Discovery & the Universe Co-Directors: Alan Peel and Stephen White
Science & Global Change Director: Thomas R. Holtz, Jr.

The College co-sponsors two College Park Scholars programs, Science, Discovery & the Universe and Science & Global Change. These living/learning programs focus around the academic disciplines of the faculty, physical sciences (in particular Astronomy) and global change sciences (in particular Atmospheric and Oceanic Sciences and Geology), respectively. In these two-year programs for incoming freshmen, students are brought together around common intellectual interests. The program seeks to inspire students to develop their interests and intellectual capacity by building a community where everyone has shared interests in scholarly pursuits. The Scholars program allows students to experience a small college environment, in close contact with faculty who are working at the forefront of their fields of expertise.

Specialized Academic Programs

CMPS Corporate Scholars Program
3400 A.V. Williams Building, 301-405-1082
www.cmps.umd.edu/csp/index.htm
Contact: Lawrence Liff, lliff@umd.edu

The Corporate Scholars Program is a combined internship and scholarship program that provides highly talented CMPS students with comprehensive work experience related to their fields of study. The program is a unique endeavor by the College to expand our students' education, improve their professional development and enhance our relationships with local businesses.

CMPS Undergraduate Research Experiences
www.cmps.umd.edu/undergraduate/research.htm

An important part of the content of CMPS majors is delivered outside the classroom, with the greatest emphasis being on leveraging our strength: research. Our students experience scientific discovery first hand, as knowledge learned in class is integrated and applied. Each major provides access to a variety of research internships that will provide opportunities to collaborate with with other students, faculty, postdoctoral fellows and graduate students. Employers and graduate schools look for research experience in applicants. Be a part of the science discovery in CMPS, which places the college among the top public and private universities worldwide.

College Honors Program

Undergraduate honors are offered to students in the Physical Sciences Program and the departments of Astronomy, Computer Science, Geology, Mathematics and Physics. Specific information is provided under the individual program descriptions.

Dean's List. A list of all students who have passed at least 12 hours of academic work in the preceding semester with an overall average grade of at least 3.5.

Associate Dean's Commendation. A list of all students who have passed at least 12 hours of academic work in the preceding semester with an overall average grade between 3.0 and 3.5.

Financial Assistance

Scholarships
www.cmps.umd.edu/undergraduate/scholarships.htm

For currently enrolled students, the College accepts merit and need-based award and scholarship applications on the College Scholarship Application Form. Students should complete one form only and submit either electronically or via surface mail. Applicants will be considered for all merit and need-based scholarships administered by the College for which they are eligible. Eligible students will also be contacted by email with information on special programs. For best consideration, College scholarship applications for each academic year should be submitted by May 10 for the school year beginning the following September.

Departmental scholarships may have different deadlines. For additional information visit the college web site.

Awards

J. R. Dorfman Prize for Undergraduate Research
www.cmps.umd.edu/undergraduate/dorfman_prize.htm

An award presented at the Spring Academic Festival for the best research project conducted on or off campus by a current College undergraduate major.

The CMPS website lists other awards and scholarships that are available to CMPS majors:
www.cmps.umd.edu/undergraduate/scholarships.htm

Research Units

Center for BioInformatics and Computational Biology
3115 Biomolecular Sciences Bldg, 301-405-5936

cbcb.umd.edu
Professor and Director: Steven Salzberg

The University of Maryland Center for Bioinformatics and Computational Biology is a multidisciplinary center dedicated to research on questions arising from the genome revolution. CBCB brings together scientists and engineers from many fields, including computer science, molecular biology, genomics, mathematics, statistics, physics, and biochemistry, all of whom share a common interest in gaining a better understanding of how life works. Students interested in Ph.D. studies in CBCB have a number of choices. While we do not have a Ph.D. program specifically in Bioinformatics, our faculty supervise Ph.D. research in bioinformatics through a number of different graduate programs. Links to these programs can be found at http://cbcb.umd.edu/programs, and potential students are encouraged to apply to the Ph.D. program that best matches their interests.

Students with a background in computer science, mathematics, physics, or other mathematically oriented fields should consider applying to the Ph.D. program in Computer Science or in Bioengineering. The Bioengineering program has been in place at the University of Maryland for several years, and in 2006 Bioengineering was launched as a new Department, which is slated to grow substantially over the next five years. Students whose principal training is in the biological sciences might prefer to apply to the Biological Sciences program, which has a new track in Bioinformatics. CBCB Faculty belong to each of these programs, allowing students with an interest in Bioinformatics to pursue a Ph.D. in the program that bests fits their previous training.

Center for Nanophysics and Advanced Materials
Physics Building, 301-405-7321
www.cnam.umd.edu
Professor and Director: Steven Anlage

The Center for Nanophysics and Advanced Materials (CNAM) brings together about thirty-five faculty from physics and affiliated departments to work on cutting-edge research problems related to condensed matter physics. The faculty conduct both experimental and theoretical research in fields such as solid state physics, strongly correlated electron systems, superconductivity, surface science, magnetic materials, and semiconductors. This research is important for commercial and defense-related applications, such as communications, digital and analog electronics, sensors, and computers. CNAM provides a unique interdisciplinary education that gives students a diversity of skills as well as a broad perspective of how scientific knowledge impacts technological development. The experimental and theoretical research programs at CNAM are carried out by approximately 40 graduate students under the supervision of the CNAM faculty. A significant number of undergraduate students also participate in research projects, many of them receiving a high honors citation upon graduation.

Center for Scientific Computation and Mathematical Modeling
4149 Computer Science Instructional Center, 301-405-0648
www.cscamm.umd.edu
Distinguished University Professor and Director: Eitan Tadmor

The ability to compute at tremendous speeds with gigantic data sets is enabling advances in nearly every discipline. Scientific computation has emerged as one of the fundamental tools of scientific investigation**.** It is concerned with the construction, analysis and implementation of novel computational algorithms which revolutionized the scientific methodology through its interplay with experiments and theory. These algorithms enable us, for example, to convert small scale interactions into accurate predictions of large scale phenomena. It is here that mathematics, modeling and experiments interact through scientific computation.

At the Center for Scientific Computation and Mathematical Modeling, graduate students and faculty are working together to develop and to understand fundamental computational techniques, algorithms and analytical tools, and to apply this understanding to outstanding scientific problems in a variety of fields. New applications ranging from transport in fluids and plasma, nano-structures and image processing to weather prediction, computational tomography and numerical relativity require scientific computation as a key partner.

Undergraduate research opportunities exist for students who are interested in learning how this cross-disciplinary partnership works.

Earth System Science Interdisciplinary Center
5825 University Research Court, 301-405-5599
www.essic.umd.edu
Professor and Director: Antonio J. Busalacchi

ESSIC is a joint center between the Departments of Atmospheric and Oceanic Sciences, Geology, and Geography together with the Earth Sciences Directorate at the NASA Goddard Space Flight Center. The goal of the Center is to enhance our understanding of how the atmosphere-ocean-land-biosphere components of the Earth interact as a coupled system. This is accomplished via studies of the interaction between the physical climate system (e.g., El Nino) and biogeochemical cycles (e.g., greenhouse gases, changes in land use and cover). The major research thrusts of the Center are studies of Climate Variability and Change, Atmospheric

Composition and Processes, and the Global Carbon Cycle (including Terrestrial and Marine Ecosystems/Land Use/Cover Change). The manner in which this research is accomplished is via analyses of in situ and remotely sensed observations together with component and coupled ocean-atmosphere-land models. Together this provides a foundation for understanding and forecasting changes in the global environment and assessing regional implications. Data assimilation and regional downscaling provide the means by which the observations and models are linked to study the interactions between the physical climate system and biogeochemical cycles from global to regional scales. Courses and research guidance by Center faculty are provided through the Departments of Geography, Geology and Atmospheric and Oceanic Sciences, or under the auspices of College interdisciplinary listings.

Institute for Advanced Computer Studies
2119 A.V. Williams Building, 301-405-6722
www.umiacs.umd.edu
Professor and Director: V.S. Subrahmanian

The faculty at the Institute for Advanced Computer Studies conduct fundamental research at the interface between computer science and other scientific disciplines supported by a state-of-the-art computing infrastructure. These interdisciplinary research programs offer opportunities for thesis research and classroom instruction, with a planned new focus on computational social sciences, bioinformatics and computational biology, and knowledge discovery and machine learning. The Institute is internationally known in computer vision and graphics, parallel and distributed computing, information visualization and educational technologies, natural language processing and computational linguistics, software engineering, and multimedia and internet computing. Courses and thesis research guidance by Institute faculty are provided under the auspices of the labs, centers, and the academic departments affiliated with the Institute.

Institute for Physical Science and Technology
4211 Computer and Space Sciences Building, 301-405-4814
www.ipst.umd.edu
Professor and Director: Rajarshi Roy
Professor and Associate Director: Michael Coplan

The faculty members of the Institute for Physical Science and Technology are engaged in the study of pure and applied science problems that are at the boundaries between those areas served by the academic departments. Areas of emphasis include applied mathematics and scientific computation, statistical physics and chaotic dynamics, biophysics and chemical physics, materials science and nanotechnology, atomic, molecular, optical and plasma physics, and space and upper-atmospheric physics. These interdisciplinary problems afford challenging opportunities for thesis research and classroom instruction. Courses and thesis research guidance by Institute faculty are provided either through the graduate programs in Biophysics, Chemical Physics, the Applied Mathematics, Applied Statistics and Scientific (AMSC) program, or under the auspices of other departments.

Institute for Research in Electronics and Applied Physics
Energy Research Facility, 301-405-4951
www.ireap.umd.edu
Professor and Director: Dan Lathrop

The Institute for Research in Electronics and Applied Physics (IREAP) is jointly administered by the College and the A. James Clark School of Engineering. The faculty members in IREAP study diverse scientific problems that are on the boundaries between physics and engineering, and teach relevant courses in the College and Engineering Departments. IREAP conducts experimental and theoretical research in nonlinear dynamics (chaos), high-temperature plasma physics, plasma spectroscopy, relativistic microwave electronics, high-brightness charged particle beams, free-electron lasers, laser-plasma interactions, ion beam microfabrication techniques, and microwave sintering of advanced materials. IREAP is recognized internationally as a leading university research center in these areas of research. We actively encourage undergraduate participation in our research program through independent study, special projects, and internships under faculty supervision. The Institute offers undergraduate fellowships and summer Research Experiences for Undergraduates (REU-TREND). Information can be found at the Institute web site www.ireap.umd.edu.

Joint Quantum Institute
2207 Computer and Space Sciences Building, 301-405-1300
www.jqi.umd.edu
Professor and Director: Steve Rolston

A new technological revolution is beginning because the strange and unique properties of quantum physics are relevant for information science and technology. Our ability to exploit quantum phenomena is still at a primitive stage, analogous to the use of a single transistor. A challenging goal is to learn how to scale up from simple few-component systems to sizes necessary for applications. Such a "quantum computer" has the potential ability to handle problems that would take the age of the universe to solve on the best conventional computers -- problems such as decryption and designing molecules for pharmaceutical applications.

The Joint Quantum Institute (JQI) has gathered two dozen leading scientists from the National Institute of Standards and Technology and the University of Maryland to create *the* international center for excellence in the study of quantum mechanics. Undergraduates are actively involved in research at the JQI, and new students are encouraged to participate.

Maryland Biophysics Program
Institute for Physical Science and Technology, 301-405-9307
marylandbiophysics.umd.edu
Professor and Director: D. Thirumalai

One of the great challenges in the current century is to use to rigorous methods in physics and chemistry to tackle cutting edge problems in biology. From transcription of genetic information to how various components of a cell function are amenable to investigation by experimental and computational methods. The faculty, graduate students, and postdoctoral fellows in the Biophysics program are using a variety of techniques to study a wise range of problems of great interest in biology. Several laboratories might recruit enterprising undergraduate students to participate in these exciting areas of research.

Materials Research Science and Engineering Center
2120 Physics Building, 301-405-8349
www.mrsec.umd.edu
Professor and Director: Ellen D. Williams

Part of a national network of NSF-funded Materials Research Centers, faculty activities in MRSEC's mandate include materials research, industrial collaborations and educational outreach. Faculty research focuses on making new materials for the next generations of information technologies, using the tools of NanoScience. Materials of special interest are carbon-based materials for use in nanoelectronics and photovoltaics, and metal-oxide materials with the property of coupling magnetic and electrical responses. MRSEC encourages undergraduate participation in the research through participation in independent study, special projects and internships with faculty supervision, and pays special attention to encouraging women and minorities to enter science.

Norbert Weiner Center for Harmonic Analysis and Applications
2211 Mathematics Building, 301-405-5058
www.norbertwiener.umd.edu
Professor and Director: John J. Benedetto

Harmonic analysis provides fundamental mathematical theory as well as important tools for science and engineering in a time of great discovery, and it addresses problems of major interest for the 21st century. Operating at the interface between academia, government, and industry, the Norbert Wiener Center(NWC) seeks to serve as a catalyst for the advancement of harmonic analysis and its applications. At the NWC, graduate students and faculty are working together to develop harmonic analysis in the context of vital industrial technologies, and to enhance these technologies with fundamental and applicable mathematical results. Research areas include wavelet theory, radar and sonar waveform design, compressed sensing, quantum computing, and medical and hyperspectral imaging. Undergraduates participate in the NWC research program through independent study, internships under faculty supervision, and the NWC's Daniel Sweet Undergraduate Research Fellowships. Women and minorities are encouraged to participate.

Student Engagement and Service Units

CMPS Internship and Career Opportunities
3400 A.V. Williams Building, 301-405-2677
www.cmps.umd.edu/careers/index.htm

The College assists students with internships and full-time employment opportunities, recruiting sessions, and workshops for interviews and resumé writing. If you are majoring in astronomy, computer science, geology, mathematics, physical sciences, or physics, check out the following webpage: www.cmps.umd.edu/careers/index.htm. This site lists announcements of internships along with interesting part-time and full-time jobs. Internships are an invaluable tool for career exploration, allowing you to build relevant résumés and make professional connections while still in school. The CMPS 497 Internship Seminar provides an academic component for the internship experience. In addition, the CMPS Corporate Scholars Program offers students a comprehensive summer work experience in their fields of study, with a professional mentor and a $2,000 scholarship.

COLLEGE OF EDUCATION (EDUC)

1204 Benjamin Building, 301-405-2344
www.education.umd.edu/studentinfo
Dean: Donna L. Wiseman

The College of Education is a professional college committed to advancing the science and art of teaching/learning, including the practices and processes which occur from infancy through adulthood in both school and non-school settings. The College's mission is to provide preparation for current and future teachers, counselors, administrators, educational specialists, and other related educational personnel, and to create and disseminate the knowledge needed by professionals and policy makers in education and related fields.

The college programs prepare educators, counselors, psychologists, administrators, researchers, and educational specialists. Graduates work with individuals from infancy through adulthood in schools, community agencies, colleges and universities. Educational programs are accredited/approved by the following: National Council for Accreditation of Teacher Education, Maryland State Department of Education, American Psychological Association, Council on Accreditation of Counseling and Related Educational Professions, and Council on Rehabilitation Education. Accreditation provides for reciprocal certification with most other states that recognize national accreditation.

The Maryland State Department of Education (MSDE) issues certificates to teach in the public schools of the state. In addition to graduation from an approved program, MSDE requires satisfactory scores on the state licensure exams (Praxis I and II) for certification. At the time of graduation, the College informs MSDE of the graduate's eligibility for certification. Under Maryland law, criminal background checks may be required and considered by the State Department of Education in the awarding of teaching certification, and by employers before granting employment in the teaching field. Certification may be denied or revoked for individuals who have been convicted of crimes of violence and/or crimes against children. Additionally, some Maryland Maryland counties require a criminal background check prior to placement in an internship

Special Advantages and Facilities

Students in the College of Education have the opportunity to work with an exemplary faculty. Among our ranks are nationally known faculty researchers who have made significant contributions to advancing theory and improving professional practice. In addition, the College's strategic location provides students with research opportunities that are unparalleled. Students can student teach and conduct research in school districts with highly diverse populations. The region also provides access to several research libraries, government agencies, not-for-profit organizations, and educational associations.

The College of Education offers many special resources and facilities to students, faculty, and the community, including the following centers:

- ***The Center for Mathematics Education*** provides a mathematics laboratory for undergraduate and graduate students. Occasionally there are tutoring services for children and adolescents. These services are offered in conjunction with special graduate and undergraduate courses in elementary and secondary school mathematics. Center faculty are engaged in research in mathematics education, serve as consultants to school systems and instructional publishers, and provide in-service teacher education in addition to graduate degree programs.
- The ***Center for Young Children*** is part of the Institute for Child Study/Department of Human Development in the College of Education. It offers a creative learning experience for children three, four, and five years old whose parents are affiliated with the University. The Center engages in child study, curriculum development, and teacher preparation. Its research and observation facilities are available to parents, faculty, and other persons concerned with the care and education of young children.

Admission Requirements

Admission to Teacher Education Professional Course Work

Applicants to the University of Maryland who have declared an interest in education are admitted to a department in the College. All majors must meet the selective admission requirements for full admission into the College of Education in order to enroll in course work in the professional teacher education degree program.

For full admission into a teacher education major, a student must (1) complete the English and math lower-level fundamental studies (six credits) with a grade of C or better; (2) earn 45 semester hours with an overall cumulative grade point average of at least 2.5 on a 4.0 scale; (3) submit a personal goal statement that indicates an appropriate commitment to professional education; (4) have prior experiences in the education field; (5) submit three letters of recommendation/reference; (6) receive satisfactory ratings on the College of Education Technical Standards/Foundational Competencies (or submit a signed copy of the College of Education Foundational Competencies/Technical Standards Acknowledgment Form if formal evaluations have not yet occurred); (7) have passing scores on the Praxis I.

Admission application forms are available in Room 1204 of the Benjamin Building. Only those who are admitted are able to enroll in the professional education sequence. An overall grade point average of 2.5 must be maintained after admission to Teacher

Education to continue in the professional education programs. A Teacher Education Appeals Board reviews appeals from students who do not meet the admissions, advancement, or retention criteria. Consult the Student Services Office (Room 1204 Benjamin Bldg.) for policies and procedures regarding appeals.

Criteria for admission to the Teacher Education program apply to any teacher preparation program offered by the University of Maryland. Thus, students desiring a major in music or physical education should apply to the College of Education for admission to the professional program in Teacher Education. Students who are not enrolled in the College of Education but who, through an established cooperative program with another college are preparing to teach, must meet all admission, scholastic and curricular requirements of the College of Education. The professional education courses are restricted to students who are enrolled in an approved teacher preparation program and degree-seeking majors who have met College of Education requirements for admission and retention.

> ***Gateway Requirements for Early Childhood and Elementary Education Programs***
>
> *In order to meet the Maryland State Department of Education's (MSDE's) institutional performance criteria for the Redesign (i.e. strong math and science background for early childhood and elementary education teacher candidates), students in these programs need to fulfill additional performance criteria. In addition to the requirements for admission to teacher education that are listed above, early childhood and elementary education majors must satisfy the following gateway requirements:*
>
> *1. Completion of a four-credit CORE laboratory physical science, a four-credit CORE laboratory biological science, Elements of Numbers and Operations (MATH 212), and Elements of Geometry and Measurement (MATH 213) with a minimum grade of C in each class and a 2.7 cumulative GPA across all four courses.*
>
> *2.Completion of Introduction to Teaching (EDCI 280) or Exploring Teaching in Early Childhood (EDHD220) with a grade of B or better*
>
> *3. Passing scores on the Praxis I: Academic Skills Assessments (Students will be required to meet the individual cut-off scores for each of the three Praxis I assessments. A composite score will not be accepted for admission.)*

In keeping with the campus undergraduate admissions policy, the College of Education will admit as many freshmen as possible as "pre-service" education majors. Internal and external transfers who have completed fewer than 60 credits and who have not yet met the standards required for enrollment in the professional degree programs also will be admitted as "pre-service" education majors. For directly admitted freshmen, the above admission requirements will serve as the criteria for the 45-credit review, which occurs at the end of the semester in which the freshmen complete 45 credits. For internal and external transfers, these criteria make up the "gateway." Students who pass the 45-credit review or the gateway will be admitted into the professional degree programs. Transfer students with sixty or more credits will be granted permission to enroll as a pre-service major in education, provided they have maintained at least a 2.5 GPA and successfully completed the lower-level fundamental studies with a minimum grade of C or better. These students will be given one semester to meet the requirements for admission to teacher education.

In accordance with MSDE policy, students in the professional teacher preparation programs must complete a 100-day internship over two consecutive semesters in an approved partner school/Professional Development School (PDS). Because there are a limited number of available PDS sites, the College may be forced to impose seat restrictions if the number of teacher candidates for a given area exceeds the number of available placements. In these situations, the College will utilize a holistic review of the applicants in the candidate pool, and select the top candidates to fill those seats. While GPA will be an important consideration, the totality of the admission portfolio will be used to determine the candidates who will be given top consideration for the available seats.

Detailed information regarding admission to the Teacher Education program, including the gateway requirements for Early Childhood or Elementary Education, is available in the Student Services Office, Room 1204 Benjamin (301-405-2344).

Undergraduate Degree Requirements/Degree Options

The College of Education confers the degrees of Bachelor of Arts (B.A.) or Bachelor of Science (B.S.) depending on the amount of liberal arts study included in a particular degree program. Minimum requirements for graduation are 120 semester hours. Specific departmental program requirements for more than the minimum must be fulfilled.

In addition to the university's general education requirements (CORE) and the specific requirements for each curriculum, the College requires that all majors complete a Foundations of Education course (e.g., EDPS 301) and, depending upon the teacher education major, six to twelve semester hours of reading course requirements. A grade of C or better is required in all pre-professional and professional course work required for the major. An overall grade point average of 2.5 must be maintained after admission to Teacher Education. A grade of S is required in the student teaching portion of the yearlong internship. All teacher candidates are required to obtain satisfactory evaluations on the College of Education Foundational Competencies/Technical Standards and attain qualifying scores for the State of Maryland on the Praxis I and Praxis II assessments. Detailed information about the Praxis assessments is available in the Student Services Office, Room 1204 Benjamin.

Exceptions to curricular requirements and rules of the College of Education must be recommended by the student's advisor and department chairperson and approved by the Dean.

Yearlong Internship (Student Teaching)

The yearlong internship, which is the culminating experience in the teacher preparation program, takes place in a collaborating school (i.e., partner school, PDS -- Professional Development School). The yearlong internship consists of one semester of methods and one semester of student teaching. Each teacher candidate's internship will vary according to the unique attributes of their teacher education program. All internships will provide teacher candidates with the opportunity to integrate theory and practice through a comprehensive, reality-based experience. The yearlong internship is arranged through the College of Education in collaboration with the school site coordinators (i.e., PDS Coordinators) and the designated schools in the partnership.

The yearlong internship is a full-time commitment. Interference with this responsibility because of employment or course work is strongly discouraged. Teacher candidates assigned to schools for this internship are responsible for their own transportation and living arrangements and should be prepared to travel to whichever school has been assigned. Student teaching requires a special fee. Please refer to the Registration Guide under Financial Information: Fees. During the yearlong internship, students should be prepared to adhere to the academic schedule/calendar for the school system in which they are placed.

In order to receive a yearlong internship placement, all teacher candidates must make application the semester prior to the beginning of the methods portion of the internship year. Prospective student teachers must have been admitted to Teacher Education and have completed all prerequisites. Prior to assignment, all students in teacher preparation programs must have: (1) maintained an overall grade point average of at least 2.5 with a minimum grade of "C" in every course required for the major; (2) satisfactorily completed all other required course work in their program; (3) received a favorable recommendation from their department; (4) attained qualifying scores for the State of Maryland on the Praxis I and Praxis II assessments; (5) applied for a year-long internship placement through the College of Education during the semester prior to the internship year; (6) received favorable ratings from prior supervised experiences in school settings; (7) received favorable evaluations on the College of Education Foundational Competencies/Technical Standards; and (8) submitted a criminal history disclosure statement. In addition, state law gives the local school to which the student teacher is assigned the discretion to require a criminal background check prior to placement. Early Childhood Education students must have a certificate indicating freedom from tuberculosis and proof of immunization.

Note: All registrations in the student teaching portion of the yearlong internship, regardless of whether a student withdraws or takes a leave of absence, will be counted as an attempt under the campus repeat policy. Only two registrations will be allowed. After two registrations, further attempts at student teaching must be approved by the department and the school system professionals involved in the teacher candidate's internship experience. This policy applies only to students in the College of Educatic Education during the student teaching portion of the yearlong internship.

College of Education Foundational Competencies/Technical Standards

All candidates in the UM professional preparation programs are expected to demonstrate that they are prepared to work with children and youth in educational settings. This preparation results from the combination of successful completion of university coursework and field/internship experiences and the demonstration of important human characteristics and dispositions that all educators should possess. These characteristics and dispositions, the College of Education Foundational Competencies/Technical Standards, are grouped into four categories: Communication/Interpersonal Skills, Emotional and Physical Abilities, Cognitive Dispositions, and Personal and Professional Requirements.

Foundational Competencies/Technical Standards serve several important functions, including, but not limited to: (a) providing information to those considering pre K-12 and community professional careers that will help such students in their career decision-making; (b) advising applicants of non-academic criteria considered in admissions decisions made by the University's pre K-12 and community professional preparation programs; (c) serving as the basis for feedback provided to students in these programs regarding their progress toward mastery of all program objectives; and (d) serving as the basis for the final assessment of attainment of graduation requirements and recommendation for certification.

Candidates in the undergraduate teacher preparation programs will be required to achieve satisfactory ratings on the College of Education Foundational Competencies/Technical Standards (or, if evaluations are not yet available, submit a College of Education Foundational Competencies/Technical Standards Acknowledgement Form) as part of the College's selective admissions review in the sophomore or junior year. Self-assessments of candidates and faculty evaluations of students on the Foundational Competencies/Technical Standards also will occur during each field/internship experience. Students will be monitored and given feedback throughout the program. At specified points, students will be notified of inadequacies that may prevent them from progressing through their program. Documentation and consensus regarding the student's functioning will be sought before any action is taken. Candidates who experience deficiencies in any areas will be encouraged to seek appropriate professional help from university or other sources. If the problem seems to be beyond remediation, admission and/or continuation in the professional programs, graduation, or recommendation for certification may be denied.

Foundational Competencies/Technical standards may be met with, or without, accommodations. The University complies with the requirements of Section 504 of the Rehabilitation Act and the Americans with Disabilities Act of 1990. Therefore, the College of Education will endeavor to make reasonable accommodations with respect to its technical standards for an applicant with a disability who is otherwise qualified. For detailed information on the College of Education Foundational Competencies/Technical Standards, see www.education.umd.edu/studentinfo/teachercert.html

Advising

The Student Services Office provides academic advising for education students regarding admission, orientation, registration, graduation, and certification. At other times, students who have been admitted to the College of Education receive academic advising through their departments. Advising is mandatory in the College of Education: Students must be advised prior to registration each semester. Students should consult an advisor in the academic department for further information about the mandatory advising requirement.

Students are required to complete an academic audit in the Office of Student Services upon admission to the professional teacher education degree program. Undergraduates are expected to complete their degree program in a timely manner and to adhere to program benchmarks. Information about program benchmarks and four-year plans is available on the Student Services website at http://www.education.umd.edu/studentinfo/current/ugmajor-currented.html.

Departments and Centers

The College is organized into seven departments, three of which offer undergraduate majors in teacher education: the Department of Curriculum and Instruction, which offers elementary and secondary education programs; the Department of Human Development and Institute for Child Study, which offers an early childhood program; and the Department of Special Education. In addition, the College includes a number of centers that offer special resources and facilities to students, faculty, and the community:

Center for Accelerating Student Learning

Center for Children, Relationships and Culture

Center for Education Policy and Leadership

Center for Integrated Latent Variable Research (CILVR)

Center of Literacy, Language, and Culture

Center for Mathematics Education

Center for Young Children

Connections Beyond Sight and Sound

Institute for the Study of Exceptional Children and Youth

International Center for Transcultural Education

K-16 Partnership and Development Center

Maryland Assessment Research Center for Education Success (MARCES)

Maryland Institute for Minority Achievement and Urban Education

Maryland Literacy Research Center

Principled Assessment Design for Inquiry in Science (PADI)

Science Teaching Center

Mid-Atlantic Center for Mathematics Teaching & Learning

National Center on Education, Disability, and Juvenile Justice

Minors

The College of Education offers five minors:

1. The Minor in Secondary Education includes 15 credits and provides opportunities for undergraduate subject area majors to enroll in a sequence of education courses that helps them to determine if teaching is a viable career option for them. For more information about the secondary education minor, contact the Department of Curriculum and Instruction, 1207 Benjamin Building.

2. The Minor in Special Education provides opportunities for undergraduate students to enroll in a sequence of education courses to determine if working with students with disabilities is a viable career option. For students interested in pursing this career option, a one-year M.Ed. program, leading to certification as a special educator, is also available. For more information about the 18-credit special education minor, see: www.education.umd.edu/EDSP/news/minorSpEd.pdf

3. The Minor in Second Language Education (TESOL) provides opportunities for undergraduate subject area majors to complete a sequence of courses that helps them prepare for careers as teachers of English as a second language in US schools and/or prepare them for roles as teachers of English as a foreign language in international settings. It includes coursework from the Department of Curriculum and Instruction and the Department of Human Development. For more information about the TESOL minor, contact the Department of Curriculum and Instruction, 1207 Benjamin Building.

4. The Minor in Human Development provides a rigorous foundation in human development for students who wish to support their major field of study with knowledge of human growth and development across multiple domains and developmental stages, as well as knowledge related to principles of teaching and learning and/or who desire active participation in human development research under the supervision of Human Development faculty in laboratory settings. Contact the Human Development undergraduate minor advisor, Dr. Megan Hurley, at mhurley1@umd.edu or 301-405-7233 for more information or to arrange an advising appointment.

5. The EDCP Minor in Leadership Studies promotes college student leadership development by educating undergraduate students *for for* and *about* leadership in a complex world. The goal of the minor is to prepare students to serve effectively in formal and informal leadership roles in campus, local, national, and global contexts. Faculty and students in the minor are dedicated to advancing the field of leadership studies by building upon and critically evaluating existing theoretical, research-based, and practical knowledge. For more information, see Beth Niehaus (0110 Stamp Student Union, eniehaus@um.edu).

Living-Learning Programs

College Park Scholars Advocates for Children

College Park Scholars is an innovative two-year living/learning program for academically talented students. Admission is by invitation. Students attend weekly, faculty-led colloquia, which engage students in discussion and debate with prominent experts in the field.

The College Park Scholars Advocates for Children Program involves students in advocacy efforts targeting a broad range of social, educational, policy and justice issues affecting diverse children, families and communities. The Advocates program is structured so that students become informed in areas of personal interest that relate to children, families and communities. They then learn to translate their knowledge into advocacy for social justice and change. Advocacy involvement includes political lobbying, grassroots organizing and service activities in schools and communities.

For more information on the College Park Scholars: Advocates for Children Program, visit 1120 Cumberland Hall or phone 301-314-5909.

Specialized Academic Programs

Secondary Education Program Options

The College of Education has multiple pathways for students who are interested in teaching at the secondary level.

The Dual Major option, which is designed for incoming freshmen or sophomores, leads to the Bachelor's degree with a major in an academic content area plus a second major in secondary education. All secondary majors are required to have an academic content major which satisfies the requirements of the academic department and meets the standards for teacher certification. Candidates who follow the proposed sequencing of courses can complete both majors in four years with careful advisement and scheduling.

The **Minor in Secondary Education** provides opportunities for undergraduate subject area majors to enroll in a sequence of education courses that helps them to determine if teaching is a viable career option for them. The 15-18 credit minor may be taken prior to admission into a teacher preparation program. If an undergraduate student pursuing or completing the minor desires to enter an education track, the candidate must apply for the dual major program to obtain certification as a secondary education classroom teacher through completion of a Maryland State Department of Education approved program option. Some of the courses students take to complete the Minor in Secondary Education may also be applicable in certification options at the graduate level offered through the Department of Curriculum and Instruction. These students should consult with an advisor in the Department of Curriculum and Instruction to identify the most appropriate option leading to teacher certification and to review the specific admission requirements associated with these programs.

The **Certificate Program** requires completion of an academic major, including coursework specific to meet certification standards in the certificate area, and a bachelor's degree in an approved academic content area, plus the completion of a certificate program in secondary education to meet requirements in UM's approved program for MSDE certification. Selected coursework from the Minor in Secondary Education may be taken prior to admission to the Certificate Program option.

The **Five-Year Integrated Master's with Certification Program**, which is intended for content majors entering the junior or senior year, is for talented students with a minimum GPA of 3.0 who seek to combine undergraduate studies in the content area and professional education as a foundation for a focused professional year at the graduate level leading to secondary-level certification in the subject field and the Master's of Education degree. As undergraduates, admitted students complete their baccalaureate degrees with a major in the relevant content area and a minimum of 12 credits in professional education studies related to teacher certification requirements. In their fifth year, they enroll in a full-year internship and complete graduate-level professional studies that make them eligible for teacher certification and the master's of education degree.

For detailed information about these secondary education program options, contact the Department of Curriculum and Instruction, 1207 Benjamin Building.

College Honors Program

Undergraduate teacher education majors meeting certain scholastic requirements may participate in the College of Education Honors Program. The objective of this program is to examine the field of education at levels of depth and breadth that go beyond that provided by any one teacher preparation sequence. The program consists of there components: group, cross-disciplinary, and individual study. The Honors Program represents an excellent springboard for students with aspirations to go on to graduate school. For further information contact Dr. Christy Corbin, 1117H Benjamin Building, 301-405-7793.

College of Education Title II
Institutional Data on Teacher Preparation

The College of Education pass rates for the Title II reporting period for the 2007-2008 academic year indicated that we exceeded the statewide pass rate in all categories. When the data were summarized, the College had a 100% pass rate; the statewide average was 97%. (Institutional pass rates: Basic Skills - 100%; Professional Knowledge - 100%; Academic Content Areas - 100%; Special Populations - 100%). Data tables reporting single-assessment institutional pass rates, aggregate institutional pass rates, and summary pass rates are available through the College website, www.education/umd.edu. Information on the number of students enrolled and the student teaching experiences is highlighted below:

- Total number of students enrolled during 2007-2008: **1115**
- Total number of students in programs of supervised student teaching during academic year 2007-2008: **307**
- Total number of supervising faculty for the teacher preparation program during 2007-2008: **58**
- The student teacher/faculty ratio. **5.3 students per faculty member**
- The average number of hours per week required of student participation was **40 hours.** The total number of weeks of supervised student teaching required is **16 weeks**. The total number of hours is **640 hours.**
- The teacher preparation program is currently approved by the state.
- The teacher preparation program is not currently designated as "low-performing" by the state as defined by section 208(a) of the HEA of 1998.
- The teacher preparation program is not currently designated as "at risk of being designated as 'low performing' by the state" as defined by section 208(a) of the HEA of 1998.

Approved Student Societies and Professional Organizations

The College sponsors chapters of Phi Delta Kappa; the Teacher Education Association of Maryland Students (TEAMS), a state/national education association; the Student Assembly, a student governance organization; and Kappa Delta Pi, an honor society in education. The Mary McLeod Bethune Society is a pre-professional organization concerned with minority issues and education. A chapter of the Council for Exceptional Children is open to undergraduate and graduate students in Special Education.

The Plan of Organization for the College of Education calls for undergraduate student representation on both the College of Educatio Education Assembly and College Senate. These organizations assume a critical role in policy development for the College of Educati Education. The Assembly meets at least once a year during the fall semester for its annual meeting. Senate meetings typically occur once a month during the fall and spring semesters. Six full-time undergraduate students are elected at large as voting members of the Assembly. At least one representative from each of the departments with undergraduates serves on the Assembly. Of the six Assembly members, one is elected to serve as a delegate to the College of Education Senate. Students interested in receiving further information about the College Assembly or Senate should contact the Office of Student Services, Room 1204

Benjamin.

In several departments there are informal organizations of students. Students should contact the individual departments or, in the case of College-wide groups, the Student Services office, for additional information regarding these organizations.

Financial Assistance

The Office of Student Financial Aid (OSFA) administers all types of federal, state and institutional financial assistance programs and, in cooperation with other university offices, participates in the awarding of scholarships to deserving students. For information (including details regarding the new TEACH grants), visit: www.financialaid.umd.edu.

In addition, contributions from the College of Education Alumni and Friends have made it possible to award a number of $1,000 scholarships to deserving undergraduate and graduate students each academic year. These awards are based on the following criteria:

- academic performance
- financial need
- leadership and contributions to the field of education or commitment to potential leadership in the field of education
- encouragement of a diverse and multicultural community

Scholarship applications may be obtained in the Office of Student Services (1204 Benjamin). Applications also are available on-line: http://www.education.umd.edu/studentinfo/scholarships/index.html.

For more information about the College of Education Scholarships, including deadlines and application materials, contact the Office of Student Services (1204 Benjamin).

Awards

Maryland Teachers of Promise Program

Each year, the College identifies five to seven of its most promising gifted pre-service educators, who are seniors and who plan to teach in the state of Maryland. These students become part of a select group of outstanding pre-service and veteran teachers participating in a mentor-protégé program and educational Institute. As part of the program, each student is paired with an award-winning veteran teacher mentor (Teacher of the Year, Milken National Educator, Blue Ribbon School Master Teacher, etc.), who provides guidance and support during the transition period into teaching. For more information about this program, contact Dr. Kathy Angeletti, Assistant Dean (kangel@umd.edu).

Student Engagement and Service Units

Student Services Office
1204 Benjamin Building, 301-405-2344
www.education.umd.edu/studentinfo

The Student Services Office provides academic advising for education majors regarding admission, orientation, registration, graduation, and certification. Information about the Praxis assessments and the College of Education Scholarships also is available in Student Services.

Educational Technology Services
0234 Benjamin Building, 301-405-3611

Educational Technology Services helps the College advance the effective use of technology in support of student learning. The Center provides a range of technology and media resources and services to faculty and students. The Center also offers professional development courses, technology planning, consulting assistance, and other outreach services to educators and policy makers throughout the state and region. A number of research, development, and demonstration activities in educational technology also are conducted through the Center's grants and contracts with federal, state, and private funding sources.

Career Center
3100 Hornbake Library; 301-314-7225
www.CareerCenter.umd.edu

All seniors graduating in the College of Education are encouraged to complete a credentials file with the Career Center. Credentials consist of student teaching evaluations and recommendations from academic and professional sources. An initial registration fee is required and enables the Career Center to send a student's credentials to interested educational employers, as indicated by the student. Students also may file credentials if completing teacher certification requirements or advanced degrees and if interested in teaching, administrative or research positions in education.

Other services available through TERP (The Employment Registration Program) include job listings in private and public schools and institutions of higher learning, on-campus interviews with in-state and out-of-state school systems, and resume referral to employers interested in hiring education majors. Information and applications from school systems throughout the country, job search publications, and various employment directories are available in the Career Center.

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- The teacher preparation program is not currently designated as "at risk of being designated as 'low performing' by the state" as defined by section 208(a) of the HEA of 1998.

A.JAMES CLARK SCHOOL OF ENGINEERING (ENGR)

3110 Jeong H. Kim Engineering Building, 301-405-8335
www.eng.umd.edu
Dean: Darryll Pines
Associate Dean(s): Gary A. Pertmer

The mission of the Clark School of Engineering at the University of Maryland is to provide quality engineering education, to conduct strong research programs, to foster a close partnership with industry and government, and to provide related service to the campus community and the community at large. A major focus of the School's activities is to provide a quality engineering education with sufficient scope to include the basic and specialized engineering training necessary to the current and emerging needs of society. The School has related responsibility to contribute to the advancement of knowledge by conducting research at the cutting edge of science and technology. Since science and technology are rapidly advancing, the School also has a professional responsibility to provide continuing education programs so the practicing engineer can remain effective. The School faculty and administration also sees as part of its mission, an obligation to serve the needs of the campus community and the community at large in the spirit of collegial cooperation.

Engineers also occupy an intermediary position between scientists and the public because, in addition to understanding scientific principles, they are concerned with the timing, economics, and values that define the use and application of those principles. With this in mind the School fosters a close partnership with industry and government, and also reaches out to both the campus community at large with its services.

Admission Requirements

Direct Admissions Requirements

1. Admission to the Clark School of Engineering is limited. Applicants are reviewed and will be admitted directly on a competitive basis. Evaluation is based on high school grades, standardized test scores, activities, leadership and demonstrations of potential to succeed. An applicant may apply to any of the majors offered within the School. An applicant also has the option of entering as an Undecided Engineering major and will typically choose a degree program in the first year.

2. National Merit and National Achievement Finalists and Semifinalists, Maryland Distinguished Scholar Finalists, and Banneker/Key Scholars are admitted directly to the School.

Academic Benchmarks

The Clark School of Engineering has expectations and policies that are designed to promote the success of its students and to ensure timely progress to the degree. A student, in consultation with School and Departmental advisors, is required to develop an individual plan for timely completion of his/her degree program. The plan will be reviewed by the student and his/her advisor on a regular basis and revised, if necessary, as individual circumstances change. Under normal circumstances, a student is expected to complete his/her degree requirements in no more than four years.

45-Credit Benchmarks

Directly admitted freshmen will be subject to an academic review at the end of the semester in which they attain 45 University of Maryland credits. In order to successfully complete the review, students must have an overall GPA of at least 2.0 and have completed ENES 100, Fundamental Studies English, one Distributed Studies Course from the Humanities or Social Sciences, and the following sequence of Gateway requirements: MATH 141, PHYS 161, and CHEM 113 or CHEM 135 with a grade of 2.0 or better.

Only one repeat of a single course to the set of Gateway courses, either at the University of Maryland or at any other university or college, will be considered to meet the review requirements. A course in which a grade of W (withdrawn) is earned is counted as an attempt. Students who fail to meet these requirements by the semester in which they attain 45 University of Maryland credits may be dismissed from the Clark School and may not reapply.

60- and 90-Credit Benchmarks

Each academic program has specific benchmark requirements at the 60 and 90 credit level. Refer to www.eng.umd.edu/advising/advi www.eng.umd.edu/advising/advising_4-year-plans.html for program benchmarks.

Transfer Admission

Direct Admissions Requirements

Internal and External Transfer students will be directly admitted to the Clark School if they meet the Gateway requirements, MATH141, PHYS 161, CHEM113 or CHEM135 with a grade of 2.0 or better, have completed Fundamental Studies English, have completed at least one Humanities or Social Studies course, and have a minimum cumulative GPA of 3.0 in all college-level coursework, and who have not previously been admitted to the Clark School of Engineering. Only one repeat of a single course to the set of Gateway courses, either at the University of Maryland or at any other university or college, will be considered to meet the review requirements. A course in which a grade of W (withdrawn) is earned is counted as an attempt. Students should wait until all gateway requirements are complete before applying for admission to the School.

Internal and External Transfer students who do not meet the Direct Admissions Requirements, but have completed the Gateway requirements, may apply and be considered for admission on a competitive basis.

Appeal Process

All students may appeal the admission decision. Students directly admitted as freshmen who are dismissed because of failure to meet gateways or to be in good academic standing at 45 credits, may appeal in writing directly to the Associate Dean for Education in the Clark School. All other students who are denied admission may appeal through the Office of Undergraduate Admissions of the University.

Special Note

Students with a previous B.A. or B.S. degree will be admitted to the Clark School of Engineering with a minimum GPA of 3.0 in all college-level coursework and a completion of MATH140, MATH141, CHEM113 or CHEM135, and PHYS 161 with a grade of 2.0 or higher in each.

Engineering Transfer Programs

Most of the community colleges in Maryland provide one- or two-year programs which have been coordinated to prepare students to enter the sophomore or junior year in engineering at the University of Maryland. These curricula are identified as Engineering Transfer Programs in the catalogs of the sponsoring institutions. The various associate degree programs in technology do not provide the preparation and transferability into the degree curricula as the designated transfer programs. A maximum of one-half of the degree credits (approximately 60 semester hours) may be transferred from a two-year community college program.

There may be some courses which are not offered by the schools participating in the engineering transfer program. Students should investigate the feasibility of completing these courses in summer school at the University of Maryland before starting their junior course work in the fall semester.

Undergraduate Degree Requirements/Degree Options

Structure of Engineering Curricula: Courses in the normal curriculum or program and prescribed credit hours leading to the degree of Bachelor of Science (with curriculum designation) are outlined in the sections describing each department in the Clark School of Engineering. No student may modify the prescribed number of hours without special permission from the Dean of the School. The courses in each curriculum may be classified in the following categories:

1. Courses in the CORE Liberal Arts and Science Studies Program.

2. Courses in the physical sciences, mathematics, chemistry, physics.

3. Related technical courses, engineering sciences and other courses approved for one curriculum but offered by another department.

4. Courses in the major department. A student should obtain written approval for any substitution of courses from the department chair and the Dean of the School. The courses in each engineering curriculum, as classified below, form a sequential and developmental pattern in subject matter. In this respect, curricula in engineering may differ from curricula in other colleges. Some regulations which are generally applicable to all students may need clarification for purposes of orderly administration among engineering students (see the Academic Regulations in chapter 4). Moreover, the Clark School of Engineering establishes policies which supplement university regulations.

School Regulations

1. The responsibility for proper registration and for satisfying stated prerequisites for any course must rest with the student as does the responsibility for proper achievement in courses in which the student is enrolled. Each student should be familiar with the provisions of this catalog, including the Academic Regulations.

2. Required courses in mathematics, physics, and chemistry have highest priority. It is strongly recommended that every engineering student register for mathematics and chemistry or mathematics and physics each semester until the student has fully satisfied requirements of the Clark School of Engineering in these subjects.

3. To be eligible for a bachelor's degree in the Clark School of Engineering, a student must have an overall average of at least a 2.0 and a grade of C (2.0) or better in all engineering courses (courses with an EN prefix). Responsibility for knowing and meeting all graduation requirements in any curriculum rests with the student.

4. In addition to the requirement for a C (2.0) or better in all EN courses, all students who begin college-level work, either at the University of Maryland or any other institution in the Spring 2005 semester or later, must receive a grade of C (2.0) or higher in all technical courses (e.g. mathematics, physics, etc) used to satisfy major requirements.

5. A course taken at UM in which a grade has been earned may not be repeated via transfer from another institution.

6. All students are required to complete a number of general education courses and must follow the university's requirements regarding completion of the general education (CORE) Program. Consult the Academic Regulations section of this catalog for additional information. Engineering students who began college-level work (either at the University of Maryland or at other institutions) during the Fall 1989 semester or later are required to complete a junior- level technical writing course regardless of their performance in freshman English classes. This represents a School policy, not a University-wide policy.

7. All degree programs in the Clark School of Engineering require a minimum of 120 credits plus satisfaction of all department, School, and University general education (CORE) program requirements. Students should be aware that for all currently existing engineering programs the total number of credits necessary for the degree exceeds 120 by some number that depends on the specific major.

Curricula for the various engineering departments are given in this catalog to illustrate how the programs can be completed in four years. These curricula are rigorous and relatively difficult. Surveys have shown that only about one-third to one-half of the students actually receive an engineering degree in four years. The majority of students (whether at Maryland or at other engineering schools nationwide) complete the engineering program in four and one-half to five years. It is quite feasible for a student to stretch out any curriculum; this may be necessary or desirable for a variety of reasons. However, students should seek competent advising in order to ensure that courses are taken in the proper sequence.

All students are urged to complete a senior audit using Degree Navigator and review with their departmental advisor at least two semesters prior to graduation. The purpose of the senior audit is to discuss academic progress and confirm that graduation requirements are being completed.

Departments and Degrees

The Clark School of Engineering offers the degree of Bachelor of Science in the following fields of study: Aerospace Engineering, Bioengineering, Biological Resources Engineering (currently being phased out - no new admits), Chemical Engineering, Civil Engineering, Computer Engineering, Electrical Engineering, Fire Protection Engineering, Materials Science and Engineering, Mechanical Engineering, B.S. Engineering (Applied Science Option). All of the above programs, with the exception of Bioengineering and B.S. Engineering (Applied Science Option) are accredited by the Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology (ABET). According to ABET policy, the new (as of July 2006) Bioengineering Program will apply for accreditation after graduation of its first student, which is anticipated in 2009.

Freshman-Sophomore Years

The freshman and sophomore years in engineering are designed to lay a strong foundation in mathematics, physical sciences, and the engineering sciences upon which the student will later develop a professional program during the upper division (junior and senior) years. During the first two years, students are introduced to the concepts of engineering design and work in multidisciplinary teams. The School course requirements for the freshman and sophomore years are similar for all students, regardless of their intended academic program, thus affording the student maximum flexibility in choosing a specific engineering specialization.

Engineering Sciences

Engineering Science courses represent a common core of basic material offered to students of several different departments. All freshman and sophomore students of engineering are required to take ENES 100. Other ENES courses, 102, 220, and 221, are specified by the different departments or taken by the student as electives. The responsibility for teaching the engineering science courses is divided among the engineering departments. In addition to the core courses noted above, several courses of general interest to engineering or non-engineering students have been given ENES designations. See the List of Approved Courses in chapter 8 for further descriptions of these courses.

Freshman Curriculum

See individual department requirements in the Departments and Majors section of this site. Entering freshman math placement is determined solely by performance on the University math placement exam and not on the Math SAT score. Placement in MATH 115 or lower will delay by a semester eligibility to take certain engineering courses.

Sophomore Year

No later than the sophomore year, a student should select an academic degree program (Aerospace, Bioengineering, Biological Resources, Chemical, Civil, Computer, Electrical, Fire Protection, Mechanical, or Materials Science and Engineering) and this department assumes the responsibility for the student's academic guidance, counseling, and program planning from that point until the completion of the degree requirements of that program as well as the School. For the specific requirements, see the curriculum listing in each engineering department.

Advising

Advising is mandatory for all students in the Clark School. Advising for freshmen and undecided engineering students is provided by the Office of Undergraduate Advising and Academic Support, located in Room 1131 Glenn L. Martin Hall, 301-405-3855, and is available by appointment Monday through Friday from 8:30 a.m. to 4:30 p.m. Walk-in advising is also available at specific times during the week. Appointments for other hours can be made by special request. Students with a declared engineering major should seek advising from their academic department. Refer to the individual program for additional information.

Minors

Minor in Engineering Leadership Development: 16 credits. Preparing engineering students for life-long leadership roles in education, industry, and government is the goal of the minor in engineering leadership development. The minor will complement the technical skills and knowledge students acquire during their academic careers to better prepare them for leadership and collaborative roles in their professional futures. Students may earn the minor and a notation on their official transcript by completing coursework which focuses on communication, global awareness, project management, understanding oneself and working effectively with others. Contact the minor advisor, Jane Fines (jfines@umd.edu), or visit the web at www.ursp.umd.edu/leadership-minor/minor-leadership.html for more information.

International Engineering: 15 to 21 credits. In addition to a strong engineering background, there is a need for engineers with cross-cultural experience and foreign language abilities. Students may earn the minor by completing a course in International Business Cultures for Engineering and Technology and additional courses in language, culture studies, or internationally related studies, plus an engineering experience abroad. Contact the minor advisor, Caine Francis (cfranci4@umd.edu), or visit the web at www.ursp.umd.edu/international/index.html for more information. Students who fulfill minor requirements will receive a notation on their official transcript.

Nanoscience and Technology: 15 credits. Explosive growth in the field of nanometer scale science and technology (NS&T) has led in the past few years to many technological advances in devices and materials structured at the nanometer scale. The Interdisciplinary Minor Program of Study in Nanoscience and Technology is intended to prepare participating students for a career in this rapidly developing field. This program draws upon the considerable expertise in nanoscience at the University of Maryland, in departments distributed among three schools, Engineering, Computer, Mathematics and Physical Sciences and Chemistry and Life Sciences. Students take courses in Fabrication/Synthesis and Characterization, which emphasize the experimental side of NS&T, as well as Fundamental Science and Specialization Electives, which teach the underlying principles and directions, and include underlying theory and the motivations for NS&T. Visit the web site www.nanocenter.umd.edu/education/nano_minor/nano_minor.php for more information.

Minor in Nuclear Engineering: 15 credits. The need for engineers with knowledge of nuclear engineering topics will grow significantly in the coming years, with new nuclear plants being planned, existing plants continuing operation, and increasing industrial and medical uses of radiation sources. The minor in Nuclear Engineering provides an engineering student with an understanding of nuclear engineering and its application to many different fields, such as power generation, reactor operation, and industrial uses. Students in the minor will learn the fundamentals of nuclear reactor engineering, radiation interactions and measurement, power plant design concepts, and reactor safety and risk assessment. The minor is open to any student in the Clark School of Engineering. Contact Dr. G.A. Pertmer (pertmer@umd.edu) for further information. Students who fulfill minor requirements will receive a notation on their official transcript.

Project Management: 15 credits. A basic understanding of project management is becoming increasingly important for engineers. Such knowledge enables them to contribute immediately to employers, and to advance their careers. In addition to a strong engineering background, there is significant need for engineers to understand the fundamentals of managing projects in order to effectively participate as members of project teams. Students who successfully complete minor requirements will receive a notation on their official transcript. Contact John Cable, Project Management Minor Advisor (jcable@umd.edu) or visit the web site www.pm.umd.edu/undergrad_programs/undergrad_minor_courses/index.html for more information.

Living-Learning Programs

FLEXUS: The Dr. Marilyn Berman Pollans Women in Engineering Living & Learning Community

Director: Paige Smith
Women in Engineering Program
1131 Glenn L. Martin Hall, 301-405-3931

The Women in Engineering Living & Learning Community (WIE LLC) is open to any first year engineering student (male or female) with an interest in promoting gender diversity in the field of engineering. Students who complete the first year of the program are invited to participate in a second year. The program seeks to promote community among first and second year engineering students committed to gender diversity in the field and to provide encouragement and support for academic and professional success by: (1) introducing students to women mentors and role models; (2) offering professional and personal development opportunities; (3) helping students make connections with peers in engineering and (4) reinforcing important technical skills needed to succeed in engineering. The components of this living and learning program include a one credit seminar course, course clustering, residential housing on a common floor in Ellicott Hall and resources provided in the residence hall.

College Park Scholars - Science, Technology, and Society

Director: Dr. Betsy Mendelsohn

Co-sponsored by the Clark School of Engineering, the Science, Technology, and Society (STS) prgoram is one of the 12 living/learning programs offered by the College Park Scholars Program. This two year program for academically talented freshmen and sophomores is open to all majors who are interested in examining the importance of social processes that shape scientific research and technological development, and conversely, the ways that science and technology shape society. The STS program sponsors social activities that build community and complement classroom work.

Specialized Academic Programs

Dual Degree Program

The Dual Degree Program is a cooperative arrangement between the Clark School of Engineering and selected colleges which allows students to earn undergraduate degrees from both institutions in approximately five years. A student in the Dual Degree Program will attend his/her college for approximately three academic years (minimum 90 semester hours) and the Clark School of Engineering at the University of Maryland for approximately two academic years (approximately 60 semester hours, hours required determined individually).

Dual degree candidates may participate in any of the baccalaureate programs in the Clark School of Engineering on a space available basis.

At the present time the participating institutions in Maryland and the District of Columbia are American University, Bowie State University, Columbia Union College, Coppin State College, Frostburg State University, Morgan State University, College of Notre Dame of Maryland, St. Mary's College of Maryland, Salisbury University, Towson University, McDaniel College, Trinity College, and Washington College. Also participating in the program are Kentucky State University, King College in Tennessee, Shippensburg University in Pennsylvania, and Xavier University in Louisiana.

Engineering Abroad

Preparation for practicing engineering in the global marketplace is increasingly important for new engineers and also for engineers to advance in their career. The Clark School offers opportunities for students to study abroad in locations around the world during their college career. Students may elect to study abroad for one or two semesters or participate in a short-term summer or winter term program. Internships and research experiences abroad are also available. Some study/internship abroad programs require fluency in the native language, while other programs offer opportunities in English. Faculty advisors and the study abroad advisor will help students select an appropriate program and course work.

For further information on the Clark School's international programs, students should contact Caine Francis (cfranci4@umd.edu) or visit the web site at www.ursp.eng.umd.edu/international/index.html.

College Honors Program

Students in the A. James Clark School of Engineering participate in the University Honors Program, College Park Scholars, the Clark School Honors Program, and departmental honors programs (see the individual department section for details).

Clark School Engineering Honors Program

The Clark School offers an Engineering Honors Program that provides eligible students the opportunity to pursue an enriched program of studies that will broaden their perspectives and increase the depth of their knowledge. Engineering students meeting all of the following criteria are eligible to apply:

1. Upper fourth of engineering juniors and seniors
2. Junior standing or 60 applicable credits
3. Completion of at least one semester at UMCP

The requirements for completing the program are as follows:

1. A Honors Research Project which often can be used as a technical elective, a written report, and an oral presentation to a faculty panel of the EHP.
2. Successful completion of both Engineering Honors Seminars (ENES 480 and ENES 481, one credit hour each).
3. Maintenance of a GPA to remain in the upper third of the class.

For more information see www.eng.umd.edu/current/ current_honors.html

Approved Student Societies and Professional Organizations

Professional Societies

Each of the engineering departments sponsors a student chapter or student section of a national engineering society. The student chapters sponsor a variety of activities including technical meetings, social gatherings, and School or University service projects. All students are strongly encouraged to join one or more of these chapters. These organizations are American Helicopter Society, American Institute of Aeronautics and Astronautics, American Institute of Chemical Engineers, American Nuclear Society, American Society of Agricultural Engineers, American Society of Civil Engineers, American Society of Mechanical Engineers, Black Engineers Society, Institute of Electrical and Electronics Engineers, Minerals, Metals and Materials Society, Society of Asian Engineers, Society of Automotive Engineers, Society of Fire Protection Engineers, Society of Hispanic Engineers, and Society of Women Engineers.

Honor Societies

The Clark School of Engineering and each of the engineering departments sponsor honors societies. Nominations or invitations for membership are usually extended to junior and senior students based on scholarship, service and/or other selective criteria. Some of the honors organizations are branches of national societies; others are local groups: Tau Beta Pi (College Honorary); Alpha Epsilon (Agricultural Engineering); Alpha Nu Sigma (Nuclear Engineering); Chi Epsilon (Civil Engineering); Eta Kappa Nu (Electrical Engineering); Omega Chi Epsilon (Chemical Engineering); Pi Tau Sigma (Mechanical Engineering); Salamander (Fire Protection Engineering); and Sigma Gamma Tau (Aerospace Engineering).

Financial Assistance

The Clark School offers scholarships to talented undergraduate engineering students. This is a competitive scholarship program with scholarships awarded for merit. Financial need and a variety of other factors may also be considered. New freshmen are automatically considered for most Clark School scholarships. Current and new transfer students must complete the online scholarship application by May 31st for best consideration. Contact Jane Fines (jfines@umd.edu) or visit the website www.ursp.umd. www.ursp.umd.edu/scholarships/index.html for more information.

The Benjamin T. Rome Scholarship is a full-ride scholarship awarded to a new freshman student each year. The Rome Scholarship covers all expenses (tuition and fees, room and board) plus a book allowance and a stipend. The award is renewable for three additional years provided the recipient maintains good academic standing and makes progress toward an engineering degree.

Research Units

Undergraduate Research Programs

Undergraduate research programs allow qualified undergraduate students to work with research laboratory directors in departments, thus giving students a chance for a unique experience in research and engineering design. Projects in engineering allow undergraduate students to do independent study under the guidance of faculty members in an area of mutual interest. For more information contact the department or the Dean's office.

Student Engagement and Service Units

Office of Undergraduate Advising and Academic Support
1131 Glenn L. Martin Hall, 301-405-9973
Director: Jenna Dolan
www.eng.umd.edu/advising

The Office of Undergraduate Advising and Academic Support Office provides a broad variety of services to assist students during their collegiate careers. Individual advising may focus on a number of student related issues including: schedule planning, course selection, university policy interpretations, career choices, social and personal adjustments, as well as identification and support for students with specific academic concerns. The office also provides orientation to new students, clears students for graduation, and is instrumental in helping students process administrative forms. The staff works closely with other campus offices to identify resources that address the various needs of our students.

Engineering Co-op and Career Services
1131 Glenn L.Martin Hall, 301-405-3863
Director: Heidi Sauber
co-op@eng.umd.edu, www.coop.eng.umd.edu

Whether it's to wire robots in a car plant, monitor a waste water management project, or reformulate cough syrup for a pharmaceutical company, the Engineering Co-op and Career Services Office assists students in finding cooperative education (co-op) and internship positions in private industry and the government. Students may work full-time or part-time during the fall, spring and/or summer semesters. Co-op and internship positions complement classroom learning and provide students the opportunity to gain professional level experience, build mentoring relationships, integrate theory and practice, confirm career choices, and help finance their education.

The first step in the application process is to attend an orientation session that focuses on internship/co-op search strategies. After writing a resume and having it critiqued by our office, students are given permission to upload their resume into our database eLink of engineering jobs and on-campus interviews. To assist students in their search we offer a wide variety of workshops on topics such as effective resumes, interview strategies, professionalism, career fair preparation, salary negotiation, and advanced job search techniques. Our website lists the current schedule of workshops. In addition, students have the opportunity to meet employers by participating in our career fairs, employer information sessions, and special job search presentations conducted by engineering recruiters. Visit our website for more information: www.coop.eng.umd.edu.

Undergraduate Recruitment and Special Programs
1131 Glenn L.Martin Hall, 301-405-3857
Director:Jane F, Fines
www.ursp.umd.edu

The Office of Undergraduate Recruitment and Special Programs is responsible for activities to recruit and retain students in the A. James Clark School of Engineering. Services include undergraduate recruitment, international programs, leadership programs, meeting with prospective students, providing K-12 outreach activities, administering the Clark School's scholarship program, advising students studying abroad, advising students completing the minor in International Engineering or Engineering Leadership Development, and coordinating Inventis: Academy of Engineering Leadership.

The Center for Minorities in Science and Engineering

1131 Glenn L. Martin Hall, 301-405-3878
Director: Rosemary L. Parker

The Center is dedicated to increasing the enrollment and graduation rates of African American, Hispanic, and Native American students majoring in engineering. The Center provides a complete package of services designed to assist students from pre-college through completion of the undergraduate degree. Services include academic advising, tutorial assistance, scholarship information, the BRIDGE Program, outreach programs, job information and support of student organizations.

Women in Engineering Program
1131 Glenn L. Martin Hall, 301-405-3931
Director: Paige E.Smith

The Women in Engineering Program (WIE Program) is dedicated to increasing the enrollment, retention, and graduation rates of females in the School, as well as identifying and addressing this group's unique needs. The Program provides a comprehensive set of initiatives designed to encourage and assist women students to become successful professional engineers.

Services offered include research fellowships, professional mentoring program, information listserv, website, living and learning community, first year peer mentoring program, workshops on careers, outreach programs, speakers, student advisory board, and support of women engineering organizations.

Engineering Information Technologies (EIT)
0123 Glenn L. Martin Hall, 301-405-0174
Executive Director: James F. Zahniser, 301-405-3885
www.it.umd.edu

Keeping pace with the latest developments in the area of information technologies worldwide, the Clark School of Engineering provides a state of-the-art computing environment that will be the standard for engineers in the years ahead. Faculty and students have access to computer workstations with a wide range of engineering software and multi-media enabled classrooms with the latest presentation capabilities. In addition, EIT provides access and support on the latest tools and services for online collaboration, presentation technologies, and distance learning.

Distance Education Technology and Services
2104 Martin Hall, 301-405-4910; Fax: 301-314-9639
www.dets.umd.edu

Distance Education Technology and Services, DETS, provides distance education technology and support service to the A. James Clark School of Engineering and the UMCP campus. We serve over 500 students per year by providing graduate and undergraduate courses in engineering and other related fields. In addition, we also provide technical, services to the campus such as video conferencing, video capturing, satellite services and more. For further information, please reference the DETS web site at www.dets.umd.edu.

SCHOOL OF PUBLIC HEALTH (SPHL)

3310 SPH Building, 301-405-2438
www.sph.umd.edu
Dean: Robert S. Gold
Associate Dean(s): Dushanka Kleinman
Assistant Dean(s): Viki Annard, Mary Kivlighan

The School of Public Health provides preparation leading to the Bachelor of Science degree in the following professional areas: Physical Education (K-12), Community Health and Family Science. The College also offers curricula in Kinesiological Sciences. In addition, each department offers a wide variety of courses for all university students. These courses may be used to fulfill the general education requirements and as electives.

Programs combining service and instruction are provided by the Children's Health and Developmental Clinic (see KNES 389E) and the Adult Health and Developmental Program (see HLSA 287).

Special Advantages and Facilities

The Friedgen Family Student Lounge, located in the SPH Building is available for use by all student in the college between 7 a.m. and 10 p.m. Access is through the student ID card. See the Director of Facilities in 3310 SPH Bldg if you do not have access.

Undergraduate Degree Requirements/Degree Options

The School of Public Health offers the baccalaureate in the following fields of study: Physical Education, Kinesiological Sciences, Community Health and Family Science. The degree of Bachelor of Science is conferred upon students who have met the conditions of their curricula as herein prescribed by the School of Public Health.

Each candidate for a degree must file a formal application with the Records Office according to the scheduled deadlines for the anticipated semester of graduation.

Advising

At the time of matriculation and first registration, each student is assigned to a member of the College faculty who acts as the student's academic advisor. These assignments are made by the individual departments and depend upon the student's chosen major. All athletes and students on probation or dismissal have mandatory advising and are seen by advisors in the Student Service Center. 301- 405-2357.

Departments and Centers

The School is composed of several departments and an institute. The following departments offer major programs that lead to a Bachelor of Science degree:

Department of Family Science
Department of Kinesiology*
Department of Public and Community Health

*Offers degrees in Kinesiological Sciences and Physical Education.

College Honors Program

Phi Alpha Epsilon. Honorary Society of the School of Public Health. The purpose of this organization is to recognize academic achievement and to promote professional growth by sponsoring activities in the fields of physical education, kinesiology, family sciences, community health, and related areas.

Students qualify for membership when they attain junior standing in physical education, kinesiology, family sciences, or community health, and have a minimum overall average of 3.5 and a minimum of 24 credits at the University of Maryland, College Park. For additional information, please contact the Student Service Center, 301-405-2357.

Research Units

Center on Aging
2367 SPH Building, 301-405-2469
Chair and Professor: Dr. Laura B. Wilson
www.sph.umd.edu/hlsa/AGING/

The Center on Aging, as part of the Department of Health Services Administration (a graduate program), stimulates and supports aging-related activities within existing departments, colleges, and schools throughout all of the various institutions of the University System of Maryland. The Center coordinates the Graduate Gerontology Certificate (master's and doctoral levels), the university's first approved graduate certificate program. The Center assists undergraduate and graduate students interested in the field of gerontology and helps them to devise educational programs to meet their goals. It is a research center working in health and aging policy, lifelong learning and civic engagement, disability and aging, behavioral and social aspects of aging, and health service delivery systems. It also conducts community education programs, assists faculty in pursuing research activities in the field of aging, conducts conferences on adulthood and aging-related topics, provides on- and off-campus technical assistance to practitioners who serve older adults and sponsors the University of Maryland Osher Lifelong Learning Institute, Legacy Leadership Institutes, the University of Maryland Retirees Association, and Retired and Senior Volunteer Programs International (RSVPI).

Student Engagement and Service Units

Student Service Center
1304 School of Public Health Building, 301-405-2753
www.sph.umd.edu/studentservices

The Student Service Center provides advising on admissions, orientation, academic policy, 4-year planning, career information, and required advising for students on academic probation or dismissal and all college athletes. All other advising is provided in the college departments. The Center is open from 8:00 am - 4:30 pm week days for use by students for studying and group meetings.

There are twelve computers available for student use.

Gymkana Troupe
1120 SPH Building, 301-405-2566
www.gymkana.umd.edu
Director: Scott Welsh

For over 60 years, the University of Maryland Gymkana Troupe has been influencing young people to live healthy lifestyles. Founded at the University of Maryland College Park campus in 1946, the troupe has traveled throughout Maryland and neighboring states promoting drug-free living. Each of its 60+ members pledges themselves to be drug-free. Through their role-modeling and unique gymnastic performances, they have influenced hundreds of thousands of people to join them in living a drug-free life. The troupe, which is open to all University of Maryland students of all abilities, is considered a one-of-a-kind organization and is believed to be the only collegiate exhibitional gymnastic troupe actively touring the United States. As an outreach program of the School of Public Health, the Gymkana Troupe uses peer role models who share their experiences and their message of healthy living with others. Students influencing students to avoid drugs is the heart of Gymkana's program.

THE PHILIP MERRILL COLLEGE OF JOURNALISM (JOUR)

1117 Journalism Building, 301-405-2399
www.journalism.umd.edu
Dean: K. Klose
Associate Dean(s): O. Reid
Assistant Dean(s): S. Crane, M. Payne-Gassaway, F. Quine, L. Ringer

Professors: D. Broder, J. Franklin (Philip Merrill Chair), H. Johnson (Knight Chair), K. Klose (Dean), E. Roberts, L. Steiner, C. Stepp, L. Thornton (Richard Eaton Chair)
Associate Professors: I. Chinoy, C. Hanson, K. McAdams (Assoc Prof & Assoc Dean UG Studies), S. Moeller, J. Newhagen, E. Zanot
Assistant Professors: R. Yaros
Lecturers: S. Banisky, A. Bonner, K. Chadha (Dir. Media, Self & Society, CP Scholars), C. Clayton, S. Crane (Lecturer & Asst Dean), A. Flynn, P. Fuchs, C. Harvey, D. Huffman (Balt. Sun Distinguished Lecturer), S. Katcef, R. Lorente, C. Rogers, G. Solomon (Prof Of Practice)
Professors Emeriti: M. Beasley, J. Blumler, P. Geraci (Assoc Prof Emeritus), D. Gomery, R. Hiebert, L. Martin
Visiting Faculty: K. Blackistone (Povich Professor), D. Nelson (Director of Carnegie Seminar), L. Pitts (Merrill Visiting Professor), L. Walker (Visit Prof)

The Major

The Philip Merrill College of Journalism prepares students for careers in newspapers, magazines, TV news, newsletters and online journalism outlets. The undergraduate journalism program culminates in a B.A. degree in journalism.

The college is fully accredited by the Accrediting Council on Education in Journalism and Mass Communications.

Students learn in college programs such as Capital News Service, a daily wire service in Washington and Annapolis, UMTV, a cable station operated by the college, and the American Journalism Review, the nation's leading media magazine.

Students majoring in journalism take approximately one-third (42 credits) of their total coursework in the Philip Merrill College of Journalism. Journalism courses are designed to provide students with a working knowledge of the tools and concepts they will need to perform as top-flight professional communicators.

The remaining two-thirds (80 credits) of undergraduate coursework consists of a variety of other subjects such as history, economics, government, sociology and psychology. This exposure acquaints students with fundamental problems and issues they will encounter in their careers. Within these credits, journalism students must choose a "Concentration" (a core of advanced work in a substantive field) to establish competency in a specialized area of knowledge they will be able to use as professionals.

Program Objectives

About the College

The Philip Merrill College of Journalism is widely considered one of the best journalism programs in the nation, blending a mix of prize-winning journalists, communication scholars and nationally recognized professional programs. The school's mission is simple: to produce the best possible journalists for leading newspapers, magazines, TV, radio and online news outlets. Recent graduates are editors, reporters and producers at The New York Times, Washington Post, CBS, Los Angeles Times, CNN, America

Online and many of the nation's other top news organizations.

Students learn from a faculty that includes Pulitzer Prize winners David S. Broder, Haynes Johnson and Jon Franklin, former CBS White House correspondent Lee Thornton and former Philadelphia Inquirer Executive Editor Gene Roberts.

Located less than 10 miles from the news capital of Washington, students participate in internships during the academic year at The Washington Post, The (Baltimore) Sun, CNN, and a wide array of Washington news bureaus. In the summer, students intern at top news organizations around the country. Broadcast news students produce and anchor a 30-minute nightly news show that reaches more than 400,000 households in suburban Washington on the College-operated UMTV station, and online students work on Maryland Newsline, a political and public policy Web-based news magazine. Advanced broadcast, online, and print students enroll in Capital News Service, an intensive full-time reporting program in Washington and Annapolis. Students also participate in some of the school's many professional programs, including the monthly magazine American Journalism Review and the Casey Journalism Center on Children and Families.

College Mission Statement

The College seeks to be the nation's preeminent professional school in its field, a model for others in its integration of scholarly work and professional practice. As we enter a new century, it aspires to lead in the uses and study of new technologies to improve understanding and performance in our fields. Its mission is to educate university students at the undergraduate, master's and doctoral level within a liberal arts context, preparing them for careers in journalism, and scholarly work and teaching in these fields; to elevate the standards of professional practice; and to advance the quality of public life through knowledge of public issues, including those related to the role in a democratic society.

Program Learning Outcomes

1. Demonstrate the ability to research, write, report and edit relevant news stories acceptable by a professional news outlet.
2. Understand the history of journalism, be familiar with coverage of diverse groups in society and learn the role of journalists in society.
3. Understand the ethical guidelines and practices that govern the profession and the legal implications and considerations that inform the profession.
4. Demonstrate the ability to apply tools, concepts and technology appropriate for the presentation of images and information in the profession.
5. Conduct research and evaluate information by methods appropriate to the profession.
6. Apply basic numerical and statistical concepts.

Special Advantages and Facilities

The Merrill College is home to many unique programs and opportunities available to undergraduate students:

UMTV: Broadcast journalism students study and learn at UMTV, the college-owned cable TV station that houses state-of-the-art equipment, including DVCPro, Avid and ENPS systems used in the field today. Students begin their broadcast education from their first semester at the College, volunteering as crew members for programs produced under the guidance of renowned broadcast faculty members.

Capital News Service: the college's Capital News Service operates two print bureaus, one in Annapolis and one in Washington, D.C, a daily television newscast, and an online news magazine. CNS provides students with real-life reporting experiences covering a beat, developing sources, generating story ideas and writing on deadline under the supervision of a faculty editor.

Real-World Experience: Students take their education out of the classroom and into the real world. Using internships, student media and in-class reporting, our students don't just learn why, but how. The college is located just outside Washington, D.C., the nation's capital, and the country's eighth largest media market.

Top-Notch Faculty: The Merrill College is home to internationally renowned journalists and media scholars, including six Pulitzer Prize winners. Courses are also taught by working journalists who serve as adjunct professors.

Access to Centers of Journalism Study: The Merrill College is home to nine centers for journalism study and professional development. Undergraduates have opportunities to interact with these programs. Internships are available for students at two of these centers. Students can write and research topics impacting the field at American Journalism Review, one of two national publications that cover the journalism industry. Students can also intern at the Casey Journalism Center on Children and Families.

Technology for the "Real World": Students use the same technologies used by professional journalists and media specialists. From the latest in non-linear editing systems, to updated technologies for digital art and pagination, every undergraduate will have access to the hardware and software used by professionals in television and radio production, visual journalism, online news and media communication.

Admission Requirements

Journalism is a Limited Enrollment Program (LEP). See the Admissions section in chapter 1 for general LEP admission policies.

Freshman Admission and the 45-Credit Review

First-time entering freshmen will gain admission to the Philip Merrill College of Journalism directly from high school on an available basis. Early application is encouraged. Freshmen admitted to the program will have access to the necessary advising through their initial semesters to help them determine if Journalism is an appropriate area for their interests and abilities. Academic and career advising is provided to journalism students throughout their academic career by qualified academic counselors and the College's faculty.

Freshmen who are admitted directly to Journalism will be subject to a performance review by the time they have completed 45 credits. To meet the provisions of the review, these students must complete: (1) The two, first-year Fundamental Studies courses: ENGL 101 and mathematics; (2) at least nine credits of Distributive Studies coursework, selected in consultation with an advisor; (3) ENGL 101 and JOUR 201 with grades of C or higher (JOUR 100 is a pre or co-requisite of JOUR 201); and (4) a minimum cumulative GPA of 2.0. Students must prove grammar skills competency through attainment of a minimum of a 2.0 in JOUR 181 prior to enrolling in JOUR 201. Students who do not meet these requirements will not be allowed to continue in the LEP and will be required to select another major. In addition freshmen are expected to complete JOUR 200 by the end of their first year.

Transfer Admission

These requirements apply to new transfer students to the University as well as on-campus students.

Note: No more than 12 transfer credits of communications courses from an accredited journalism program may be approved by the College to be applied toward the degree. Transfer students who wish to receive credit for JOUR 201 based on work done in a non-accredited journalism program must pass a proficiency exam.

In order to be admitted to Journalism, transfer students will be required to meet the following set of gateway requirements: (1) The two, first-year Fundamental Studies courses: ENGL 101 and mathematics; (2) at least nine credits of Distributive Studies coursework, selected in consultation with an advisor; (3) completion of ENGL 101 and JOUR 201 with grades of C or higher. Enrollment in JOUR 201 requires proof of grammar skills competency through the attainment of at least a 2.0 in JOUR 181; and (4) attainment of a 2.8 GPA for all college-level work attempted.

The Test of Standard Written English (TSWE) was phased out at the end of the 2005-06 academic year. Students who failed to pass the TSWE (with a minimum score of 52 on their second attempt) prior to the end of the 2005-06 academic year are not eligible to take JOUR 181 to demonstrate grammar skills competency.

Appeals

Students who are unsuccessful in gaining admission to Journalism at the freshman or transfer level, and believe they have extenuating or special circumstances that should be considered, may appeal in writing to the Office of Undergraduate Admissions. The student will be notified in writing of the appeal decision.

Students admitted to Journalism as freshmen that do not pass the 45-credit review but believe they have special circumstances that should be considered, may appeal directly to the College.

For further information, contact The College's Student Services office at 301-405-2399.

Requirements for the Major

** Effective for students matriculating Fall 2008 or later. (Student matriculating before Fall 2008 should contact an advisor about requirements).*

Students are required to earn a minimum of 122 credits. Due to the liberal-arts focus of journalism, accredited journalism programs require majors to complete successfully approximately two-thirds of their coursework in areas other than journalism and communication. The Philip Merrill College of Journalism at the University of Maryland adheres to this nationwide policy. In practical terms, this means that of the 122 minimum credits required for graduation, a journalism student must take 42 credits in journalism (numbered 100 or above). Of the remaining 80 credits, a minimum of 65 must be earned in liberal-arts designated courses.

The Philip Merrill College of Journalism stipulates that 56 of the total credits must be taken in upper-level courses (courses numbered 300-499).

Required courses for all journalism majors regardless of whether journalism is a student's primary or secondary major:

I. Journalism requirements outside the College

Students must complete the following liberal arts coursework complementing the University's general education requirements. For the University's general education (CORE) requirements, consult the CORE program in the current Undergraduate Catalog.

- Abstract thinking skills requirement (nine credits)
    1. One three-credit statistics course from the following list:
       BIOM 301, BMGT 230, CCJS 200, ECON 321, EDMS 451, GEOG 305, GVPT 227, PSYC 200, SOCY 201, or a more advanced statistics course.
    2. A minimum of six credits through one or a combination of the following options. Should a student choose to combine the options, at least one language course must be at the intermediate level:
        - Language: up to two courses with at least one course at the intermediate level and no more than one course at the introductory level. (High school equivalency does not satisfy this requirement.)
        - Math/Statistics/Computer Science: up to two courses
            - Any mathematics (MATH) course numbered 111 or higher.
            - Any computer science (CMSC) course.
- Public Speaking: one course from COMM 100, 107, 200, or 230.
- History: one course from HIST 156 or 157.
- Behavioral or Social Science: one course from ANTH 260; PSYC 100 or 221; SOCY 100 or 105.
- Economics: one course from ECON 200 or 201.
- Government and Politics: one course from GVPT 100 or 170.
- Supporting Area: Four upper-level (numbered 300 or higher) courses for a minimum of 12 credits in a supporting field (cannot be in Communication).

II. Journalism course requirements:

- JOUR 100-Professional Orientation (one credit)
- JOUR 200-History, Roles and Structures (three credits)
- JOUR 201-News Writing and Reporting (three credits)
- JOUR 202/262-News Editing (three credits)
- JOUR 203 - Multimedia Reporting (three credits)
- JOUR 300-Ethics (three credits)
- One of News Writing and Reporting II (three credits):
    - JOUR 320-Print or
    - JOUR 360-Broadcast
- *Advanced Skills: Any two JOUR classes numbered 321-389 (six credits)
- JOUR 350-Graphics or JOUR 352-Online Journalism (three credits)
- JOUR 399-Supervised Internship (one credit)
- JOUR 400-Law of Mass Communication (three credits)
- One of the following (three credits):
    - Advanced Skills - JOUR 321-389
    - Journalism and Society Course - JOUR 410-469
- Research: Any JOUR course numbered 470-479 (three credits)
- Journalism Capstone Experience (three credits)
- Journalism Capstone Colloquium (one credit)

* Students pursuing a broadcast track are required to complete JOUR 361 as one of the two JOUR classes numbered 321-389.

III. Specific Journalism Requirements

- Completion of JOUR 201: Students must complete JOUR 201 with a "C" or higher. Consult the Undergraduate Catalog or on-line Schedule for a list of prerequisites and restrictions for journalism courses.
- "C" Requirement: Students must earn a "C" or better in JOUR 201 and JOUR 202/262 prior to taking any courses for which they serve as a prerequisite.

Placement in Courses

Enrollment in JOUR 201 requires proof of grammar skills competency through the attainment of at least a 2.0 in JOUR 181.

The Test of Standard Written English (TSWE) was phased out at the end of the 2005-06 academic year. Students who failed to pass the TSWE (with a minimum score of 52 on their second attempt) prior to the end of the 2005-06 academic year are not eligible to take JOUR 181 to demonstrate grammar skills competency.

Advising

The Office of Student Services, 1117 Journalism Building, 301-405-2399, provides academic advising to majors on an appointment basis. Send e-mail inquiries to jourug@deans.umd.edu.

Living-Learning Programs

College Park Scholars Media, Self & Society

CPS in Media, Self and Society Director: Dr. Kalyani Chadha

Co-sponsored by the Philip Merrill College of Journalism, the Media, Self and Society Program is one of the living/learning programs offered by the College Park Scholars Program. This two-year program for incoming freshman is designed to give students the opportunity to undertake a critical examination of media organizations, institutions and practices as well as gain practical experience through involvement in a media-related activity of their choice. For more information see the College Park Scholars Program section in this catalog.

Honors Program

Although no departmental honors program currently exists within the College, academically outstanding students are recognized through Kappa Tau Alpha, the Journalism academic honor society.

Student Societies and Professional Organizations

The college sponsors student chapters of the Society for Professional Journalists, the National Association of Black Journalists, and the Radio and Television News Directors Association. These organizations provide students with opportunities to practice skills, establish social relationships with other students both on and off campus, and meet and work with professionals in the field.

For information on the organizations listed, contact the Student Services Office, 1117 Journalism Building, 301-405-2399.

Financial Assistance

The College is committed to enrolling the most qualified students, regardless of ability to pay. Toward that end, the College through donor-sponsored awards gives more than $105,000 annually in scholarships to undergraduates. Additionally, the University awards scholarships and financial aid including low-interest loans, grants and work-study opportunities.

Sources for Incoming Students
All incoming freshman are automatically considered for scholarships granted by the College.

The Freedom Forum Journalism Scholarships - Awards of $1,250 to an incoming freshman and $1,250 to an outstanding undergraduate (print, broadcast or online) with financial need.

Gridiron Foundation Journalism Scholarships - Funded by the Gridiron Foundation of Washington, the $6,000 annual award is a four-year renewable scholarship given to an incoming journalism freshman. Selection is based on merit and a commitment to print journalism.

William Randolph Hearst Scholarships - Awards of $2,000 for one year only to outstanding Maryland high school students admitted to the Philip Merrill College of Journalism.

Baltimore Sun Diversity in Journalism Scholarship - A non-renewable $2,500 award established by the Times Mirror Foundation to an incoming freshman with high academic achievement in high school and wide-ranging cultural and economic background, who resides in the Baltimore Sun's circulation area.

Sources for Current Students
Every year, students benefit from the generosity of our donors with myriad scholarships, ranging from $500 to $5,000 in one-time and renewable installments, awarded by the college. Students are selected on a basis of need, merit, donors' intent or a combination of these factors. Below is a selection of scholarships students may apply for:

The Joseph R. Slevin Award
The Paul Berg Diamondback Scholarship
Entravision Communications Broadcast Journalism Scholarship
Washington Press Club Foundation Scholarships
John Story Cleghorn and Nona Reese Cleghorn Scholarships
The Reese Cleghorn Excellence in Journalism Scholarships
Jay Jackson Scholarship
The Frank Quine and Mary Ellen Doran-Quine Journalism Scholarship
Maryland-Delaware-DC Press Association Scholarships
The Richard W. Worthington Journalism Scholarship
Gertrude Poe Scholarships
The Stanley E. Rubenstein Memorial Journalism Scholarship
Steven C. Affens Broadcast Journalism Scholarship
The Ralph Crosby Journalism Excellence Scholarship
The Fred I., Edna O. and Fred J. Archibald Scholarship

The Phyllis and Frank Kopen Broadcast Journalism Scholarship
The Marjorie Ferguson-Benjamin Holman Scholarship
The Hiebert Journalism International Travel Award
The Gene Roberts Award

For more information, and eligibility requirements, visit www.journalism.umd.edu/financial/

Other Sources
The Office of Student Financial Aid (OSFA) administers all types of federal, state and institutional financial assistance programs and, in cooperation with other university offices, participates in the awarding of scholarships to deserving students. For information, visit: www.financialaid.umd.edu

Awards and Recognition

Maryland-Delaware-District of Columbia Press Association Top News-Editorial Student - Awarded annually to an outstanding print journalism student at the May commencement. A separate award is also given to the top Broadcast student.

Julie Galvan Outstanding Campus Member Award - The Society of Professional Journalists chapter selects one graduate in journalism who is outstanding in his or her class on the basis of character, service to the community, scholarship, proficiency in practical journalism and significant contributions to their SPJ chapter.

Kappa Tau Alpha Top Scholar Award - Awarded at each commencement to the journalism student earning the highest academic achievement for all undergraduate study.

Kappa Tau Alpha National Honor Society - The top ten percent of the journalism graduating class is inducted into this national organization each commencement.

Fieldwork Opportunities

Internships

Supervised internships are essential. Penny Bender Fuchs is the Director of the Journalism Internship Program, 3116 Journalism Building, 301-405-2796.

Professional Experience Opportunities

Capital News Service

The Annapolis and Washington bureaus of the Capital News Service are staffed by students and supervised by college instructors. Students cover state and legislative news for client papers around the region. Broadcast students have the opportunity to participate in Capital News Service in the Annapolis bureau, developing stories and packages for UMTV. Students are required to report breaking news under deadline, write profiles, and cover state agencies. This is a full-time, semester-long program, on site at one of two bureau locations. Students interested in web journalism can report, write and edit for Maryland Newsline, an online magazine. This bureau is located in the college's online facility. Capital News Service is coordinated by Assistant Dean Steve Crane, Journalism Building, 301-405-8806.

UMTV

For students interested in broadcast news, opportunities to gain experience with cable news programs are presented within the curriculum and by volunteering at the campus television station, UMTV.

Student-Run Campus Media Outlets

Students can gain broadcast news and sports reporting experience through the campus radio station, WMUC. There are numerous student-run publications on campus. These include, The Diamondback, an independent daily newspaper that appears in print and online. The Diamondback is one of the most-read campus dailies in the nation. Among the many campus publications there are literary magazines and newspapers of interest to special populations. These include the Eclipse, Black Explosion, The PublicAsian, Mitzpeh and Unwind! magazine.

COLLEGE OF INFORMATION STUDIES (CLIS)

4105 Hornbake Building, 301-405-2033
www.clis.umd.edu
Dean: Jennifer J. Preece

While the College does not currently have an undergraduate major, it offers courses at the undergraduate level, which may be found under Library Science (LBSC). These courses are suggested for students wishing to develop skills in locating, analyzing, and evaluating information and those seeking to learn more about career opportunities in the information field.

SCHOOL OF PUBLIC POLICY (PUAF)

2101 Van Munching Hall, 301-405-6330
www.puaf.umd.edu
Dean: Steve Fetter

While the School does not currently have an undergraduate major, it offers courses at the undergraduate level, which may be found under Public Affairs (PUAF). These courses are suggested for students wishing to develop knowledge and experience in public policy and leadership. For additional information on possible undergraduate opportunities see www.publicpolicy.umd.edu/prospective/undergrad.html.

OFFICE OF UNDERGRADUATE STUDIES

2130 Mitchell Building, 301-405-9363
www.ugst.umd.edu
Associate Provost and Dean: Donna B. Hamilton
Associate Dean: Katherine McAdams
Assistant Deans: Deborah Reid Bryant, Lisa Kiely, James Newton
Assistants to the Dean: Kathryn Robinson, Laura Slavin

Through its many programs, the Office of Undergraduate Studies serves all undergraduate students at the University and the faculty and staff that support the undergraduate mission of the campus. The Office of Undergraduate Studies is the primary division at theUniversity of Maryland responsible for leadership and oversight of undergraduate curricular and co-curricular education. The responsibilities of Undergraduate Studies include:

- Living-learning programs
- Academic enrichment programs
- Interdisciplinary and individual studies programs
- Academic advising policy and assessment
- CORE/General Education
- Academic planning and policy
- Enrollment management
- University learning outcomes assessment

Primary listings for programs that report to the Office of Undergraduate Studies appear in this section (except where noted).

Academic Achievement Programs

2110 Marie Mount Hall, 301-405-4736
www.aap.umd.edu
Executive Director: Dr. Jerry L. Lewis

The Academic Achievement Programs (AAP) primarily serves traditionally under-represented and low-income and first-generation college students. Academic support, skill enhancement, academic advising and counseling, and tutoring are provided for these populations and for students with disabilities. Academic Achievement Programs include the Intensive Educational Development (IED), Educational Opportunity Center (EOC), the Ronald E. McNair Post-Baccalaureate Achievement Program (McNair), the Summer Transitional Program, and Student Support Services (SSS). EOC, McNair, and SSS, are part of the Federal TRIO programs and are funded by the U.S. Department of Education to promote access, provide support services, motivate, and prepare students from disadvantaged backgrounds for retention in and graduation from undergraduate programs and to prepare for doctoral programs.

Educational Opportunity Center (EOC)
Ms. Lisa Peyton-Caire, Associate Director
301-429-5933

EOC is supported by a U.S. Department of Education grant designed to assist persons 19 and older, low-income, and first-generation in pursuing post-secondary educational opportunities. UM-EOC serves primarily Inner-Beltway communities in Prince George's County and provides assistance in the application processes for admission to and financial aid for post-secondary education. Specific guidance is given in selecting colleges, completing the FAFSA, and promoting post-secondary education for target populations. EOC also works with high school seniors in some Prince George's County High Schools.

Summer Transitional Program (STP)

The Summer Transitional Program (STP) assists students in both their academic and personal adjustment to the University. It includes very intensive skills enhancement in math, English, and college study strategies, coupled with enrollment in a selected three-credit university CORE course with tutoring to facilitate students' academic adjustment. In addition, students enroll in a one-credit orientation course and participate in weekly individual and/or group counseling sessions. The six-week STP is required of all students admitted to the University through SSS/IED.

Intensive Educational Development (IED)
Dr. Tilahun Beyene, Associate Director, AAP and IED
301-405-4751

IED provides an array of intensive academic and tutorial services to first-year and second-year students who participate in the Summer Transitional Program (STP), eligible first- and second-year transfer students, and other eligible students who seek academic support. The IED program begins with the STP; prospective students who are admitted to the University through the IED program are required to attend this six-week transitional program. Successful completion of the STP is required for admission to the University. Admitted students continue to receive program services throughout their undergraduate career at the University.

Student Support Services (SSS)
Dr. Tilahun Beyene, Associate Director
301-405-4750

SSS is a U.S. Department of Education grant supported program geared toward low-income and first-generation college students. It works in conjunction with the IED Program focusing much of its support to first- and second- year students. SSS provides academic and career advising, tutoring, stress management, and study-skill and test-taking support to eligible low-income and first-generation undergraduate students throughout their time at the University. The SSS program also provides financial aid workshops and assistance, individual and group counseling, and leadership development workshops. In limited cases, SSS provides supplemental grant aid to eligible participants in the program.

Ronald E. McNair Post-Baccalaureate Achievement Program
Dr. Wallace Southerland III, Associate Director
301-405-4749

The McNair program is funded and designed principally to prepare low-income, first-generation college juniors and seniors and/or students from traditionally underrepresented groups to attend graduate school, especially, to pursue doctoral degrees. The McNair program offers a six-week summer research experience that affords students the opportunity to work intimately with faculty mentors on specific research projects, refine skills in written and oral communication, computer applications, statistics and research methodology. Participants are required to complete a research abstract/paper for publication. Seniors are given the opportunity to participate in a mock dissertation defense, they receive financial support toward presenting their research at conferences. The program also offers assistance with preparation of a compelling personal statement, admission and financial aid applications, preparation for graduate school admissions tests, and successful completion of graduate degrees.

Asian American Studies Program (AAST)

1120 Cole Student Activities Building, 301.405.0996
www.aast.umd.edu
aast@umd.edu

Director: Larry Hajime Shinagawa, Ph.D.

The Asian American Studies Program (AAST) provides students with the opportunity to study critically the experiences of Asian Americans. Through an interdisciplinary approach, students examine the histories, communities and cultures of Asian Americans as both distinctive from and connected to the broader themes for diversity, ethnicity, race, gender and migration in the Americas. AAST offers a 15 credit-hour minor. For the Minor, courses may be cross-listed in other departments and some may satisfy CORE and Diversity requirements.

Minor Requirements:

A. AAST Core Courses (6 credits):
1.   Introduction to Asian American Studies (AAST 200/AMST298C)
2.   Asian American History and Society (AAST 201/HIST219M)

B. Upper-level Courses (6 credits): In addition to the two required foundational courses, students will also select *two* additional upper-level (300/400) courses, one of which would be at the 400 level, from the following list of regular and special topics courses: AAST 384, AAST388, AAST398A, AAST398B, AAST398C, AAST 398D, AAST398G, AAST 398L, AAST 398P, AAST 420/WMST 420, AAST 424/SOCY 424, AAST 498A, AAST 498B, AAST 498C, AAST 498D, AAST 498E, AAST 498F, AAST 498G, AAST 498I, AAST 498J, AAST 498K, AAST 498L, AAST 498M, AAST 498N, AAST 498P and AAST498T.

C. The final requirement for the Minor is the successful completion of AAST 378 (Experiential Learning - 3 credits), a semester-long internship at an organization that centers its efforts on Asian American issues. Such organizations may include governmental units, non-profit agencies, and on-campus organizations.

Air Force Reserve Officer Training Corps (AFROTC) Program

2126 Cole Student Activities Building, 301-314-3242
www.afrotc.umd.edu
Director: Colonel Robert E. Pecoraro

The Air Force Reserve Officer Training Corps (AFROTC) provides students the opportunity to earn a commission as a second lieutenant in the United States Air Force while completing their undergraduate or graduate degree. It is highly recommended that students seeking a commission contact the AFROTC department for full program details before registering for classes.

Program requirements

AFROTC is designed to be a 4-year experience, but the schedule can be compressed (minimum of 2 years) for qualified candidates. Allowances will vary depending on individuals' abilities to pass minimum cadet standards. A full four-year program is composed of the 2-year General Military Course (GMC) and the 2-year Professional Officer Course (POC). GMC students receive an introduction to the Air Force and various career fields, and have a chance to compete for scholarships. Non-scholarship GMC students incur no military service obligation and may elect to discontinue the program at any time. Students wishing to attend the POC must pass all cadet standards by their last semester in the GMC, and compete for acceptance to attend a summer field training course. After completing field training, students entering the POC are contracted to serve a minimum of 4 years active-duty service in the Air Force.   The POC concentrates on the development of leadership skills and the study of United States defense policy. Additionally, as contracted cadets all POC students receive a monthly allowance of $450-$500.

Scholarships and Incentives

AFROTC scholarship programs provide 2-year to 4-year awards on a competitive basis. Those members of AFROTC who pass basic cadet standards are eligible for scholarships in any degree program, based on a competitive selection process held every spring. Scholarship recipients receive money for tuition, a book allowance (currently $900/year), and a monthly allowance from $300 to $500, depending on level in AFROTC. Special degree-specific scholarships are also available to those in select technical and non-technical fields, depending on Air Force needs (check with AFROTC department for current list). Some of these options allow entering juniors to go directly into the POC and finish the entire AFROTC program in 2 years; students considering this option should make application the semester prior to start.

Army Reserve Officer Training Corps (ROTC)

1150 Cole Student Activities Building, 301-314-9239
www.amryrotc.umd.edu
armyrotc@umd.edu

Director: Lieutenant Colonel Ranelle Manaois

The Army Reserve Officer Training Corps offers students the opportunity to earn a commission as a Second Lieutenant in the United States Army (Active, Reserve, or National Guard) while completing their undergraduate degree.

Four-Year Program

The four-year program is composed of the Basic Leadership Course and the Advance Leadership Course. The first two years (Basic Course) consists of a general introduction to military customs and courtesy, soldier skills, communication skills, personal development, and introductory leadership skills. Students enrolled in the basic course incur no obligation and may discontinue the program at any time. In the final two years (Advanced Course), students concentrate on developing leadership skills in organizations. Students must have permission of the Director of Army ROTC to enroll in the advanced course. The Advanced Course requires five weeks of field training at Fort Lewis, Washington the summer after their junior year.

Two-Year Program

The two-year program is available to students with two years and a summer remaining in their university studies. The academic requirements for this program are identical to the Advanced Course in the four-year program, and students are eligible to receive the same benefits. During the summer preceding the junior year, students must attend five weeks of field training at Fort Knox, Kentucky. Students should start the application process for this option no later than January of their sophomore year.

Scholarships and Incentives

Army ROTC Scholarships are available for four, three or two years on a competitive basis. The scholarships are based solely on merit, not financial need. Those selected receive tuition and mandatory fees, a book allowance, and a non-taxable monthly allowance ranging from $350-$500 based on academic year.

Curriculum

Basic Leadership Course
Freshman Year: ARMY101 (fall) ARMY102 (Spring)
Sophomore Year: ARMY201 (Fall) ARMY202 (Spring)

Advanced Leadership Course
Junior Year: ARMY301 (Fall) ARMY302 (Spring)
Senior Year: ARMY401 (Fall) ARMY402 (Spring)

All Army ROTC courses are open to any university student for credit whether or not he or she is enrolled as a cadet in the Army ROTC program.

Beyond the Classroom

1104 South Campus Commons, Building 1, 301-314-6621
www.BeyondTheClassroom.umd.edu
btcinfo@umd.edu

Director: James V. Riker

Beyond the Classroom (BTC) is an interdisciplinary living-learning program dedicated to equipping students with the educational and professional leadership skills to understand and to contribute constructively to civic engagement and social change in a global context. Students address significant civic and social issues through internship, community service, and civic learning experiences with nonprofit, nongovernmental and civil society organizations in the greater Washington, D.C. metropolitan area. Through its integrated academic, experiential, and service components that offer students real-world opportunities, BTC enables students to develop and to realize their potential for civic leadership at the local, national and global levels. BTC is a two-semester program open to all sophomores, juniors, and seniors.

Center for Teaching Excellence

0405 Marie Mount Hall, 301-405-9356
www.cte.umd.edu
cte@umd.edu

Director: Spencer Benson

The Center for Teaching Excellence supports departmental, individual and campus-wide efforts to enhance teaching and learning at the University of Maryland. The Center offers assistance to departments, faculty, graduate and undergraduate teaching assistants. The Center provides workshops, teaching assistant development, evaluation and support strategies for improving teaching and learning, individual consultations for faculty and graduate students, research on current teaching practices, and implementation of innovative teaching and learning strategies.

The Center also administers an undergraduate teaching assistants program, a University-wide teaching and learning program for graduate teaching assistants, the Lilly Teaching Fellows program, the Instructional Improvement Grants program, and various Scholarship of Teaching and Learning programs.

Educational Talent Search

3103 Turner Hall, 301-314-7763
www.etsp.umd.edu
Director: Andre Nottingham

Educational Talent Search

Educational Talent Search (ETSP) is a federal TRIO program grant- funded by the U.S. Department of Education and sponsored by the University of Maryland since 1985. We provide free pre-college assistance to disadvantaged students enrolled at 10 target high schools in Prince George's County Public Schools. The goal of the program is to increase the number of students that graduate from high school and continue on to enroll at an institution of higher education. Educational Talent Search counselors assist individuals by providing early awareness counseling and assistance in academics, financial aid, career explorations, tutorial services, exposure to college campuses, peer mentoring, student/parent workshops, SAT/ACT prep, and assistance with college applications. In addition, we assist students who have dropped out by encouraging them to re-enter school.

College Park Scholars Program (CPSP)

1125 Cumberland Hall, 301-314-2777
www.scholars.umd.edu
Executive Director: Greig Stewart

College Park Scholars is a class of interdisciplinary, two-year living/learning programs in which academically and creatively talented freshmen and sophomores explore interests that enhance, or complement, their academic major. Students in each program attend weekly, faculty-led colloquia that encourage active discussion and debate. Other courses in the curriculum satisfy general education (CORE) requirements. In the second semester of their sophomore year, students choose from independent research, service-learning projects, or internships -- both on and off campus -- for their Scholars –practicum experience.

The Programs' focus on community offers many advantages. Program faculty maintain offices in Cambridge Community residence halls which facilitates meeting with students. Several program faculty lead study-abroad experiences between the winterterm or during the summer. Living together in the residence halls helps students form study groups for common courses. Scholars also engage with guest speakers and have the opportunity to continue conversations outside the classroom. Program directors encourage students to pursue leadership opportunities in co-curricular activities, design and implement community service and social events, participate in tutoring, recruitment activities, or serve on the Student Advisory Board.

Upon successful completion of the program, students earn an academic Citation (requirements vary by program). In their junior year, students are encouraged to build on their Scholars experiences by applying to departmental honors programs and other learning community opportunities.

Admission to College Park Scholars is selective and by invitation. Upon invitation to Scholars, students indicate their preference from the following programs:

Advocates for Children
Arts
Business, Society, and the Economy
Cultures of the Americas
Earth, Life, and Time
Environment, Technology and Economy
International Studies
Life Sciences
Media, Self, and Society
Public Leadership
Science and Global Change
Science, Discovery, and the Universe
Science, Technology, and Society

CORE Liberal Arts and Sciences Studies Program

2130 Mitchell Building, 301-405-9363
www.ugst.umd.edu/core
Director CORE Planning & Implementation: Laura Slavin

To earn a baccalaureate at the University of Maryland all students complete both a major course of study and a campus-wide general education program. For more information, see Chapter 5, General Education Requirements.

Federal Semester Program

0110 Hornbake Library, 301-314-0023
www.federalsemester.umd.edu
Director: Dr. Joan Burton

The Federal Semester is a selective, year-long program coordinated by the Office of Undergraduate Studies in conjunction with several colleges/programs and the Career Center. The program is designed to bring students from all disciplines together to learn, discuss and explore issues of federal policy and is available to students by application. Rising juniors and seniors with strong academic backgrounds and an interest in federal policy are encouraged to apply. The Federal Semester Program consists of three primary components:

1. The Federal Semester Seminar: UNIV348 (3 credits, fall semester). A choice of several seminar courses focused on federal policy. Each seminar course has a separate thematic focus (for example, federal health policy, homeland security policy). The seminar courses benefit from the diversity of students who participate in the Federal Semester Program. In the small seminar setting students bring knowledge from their disciplinary focus to discussion of Federal Policy.

2. The Internship: UNIV349 (3 credits, spring semester). The Federal Semester Experiential Leaning course includes an internship with a federal agency or related organization. (With permission, students may complete the internship under the course number for internships in the student's major.)

3. Supporting course work: Two regular UM courses approved by the program that complement the Federal Semester mission (6 credits). (With permission, students may apply courses completed prior to the Federal Semester year.)

In addition, students will participate in Federal Semester Program activities including visits to Capitol Hill and federal agencies, conversations with leaders in public policy, workshops on finding and making the most of your internship, and an end-of-the-year event.

To apply students must have completed 45 credits with a grade point average of 3.0 or higher and must submit a completed application. For details and application: www.federalsemester.umd.edu.

Global Communities

1122 Holzapfel Hall, 301-314-7100
www.international.umd.edu/gc
Director: Kevin McClure

Through Global Communities, students become: 1) aware of global issues and diversity through cultural programming and academic experiences in their residence hall and in the Washington, DC area; 2) empowered with knowledge and skills that allow them to communicate with people from a variety of backgrounds and to thrive as citizens of the world; and 3) active as agents of change in their immediate places of influence and beyond. Domestic and exchange students in the program live in Dorchester Hall, creating an international residential experience. Students take a one-credit colloquium course each semester and one supporting area course each year. They have opportunities to take part in a intercultural events, such as visiting an embassy, attending a lecture by a renowned scholar, or taking part in a sustainability camping trip. After the completion of the curriculum and the successful submission of a portfolio of global skills, students are awarded a Global Competencies notation on their transcripts.

Individual Studies Program

0110 Hornbake Library, 301-314-0023
www.ivsp.umd.edu
Director: Dr. Joan Burton

The Individual Studies Program (IVSP) is a degree-granting academic program under the direction of the Office of Undergraduate Studies. The program allows students to create new interdisciplinary curricula leading to the Bachelor of Arts or Bachelor of Science degree. Students draw primarily from the University of Maryland's course offerings to form an academic concentration not otherwise available to them at the institution. A written prospectus that defines the student's major and outlines the curriculum is required to apply to the program. Individually created student majors have recently included such titles as Peace and Justice Studies, Asian American Policy and Advocacy, Global Health, International Studies, Urban Studies and Planning, Interactive Media Studies, and Studies of the Mind and Brain.

Students must seek the guidance and approval of a faculty mentor prior to having their prospectus reviewed by the Individual Studies Faculty Review Board. If approved, the courses agreed upon by the Faculty Review Board become the basis for the student's major requirements. These listed requirements from numerous academic departments, along with the CORE general education requirements, are analogous in most ways to the academic requirements given to students who select from the University's traditional majors. However, each student is required to design a unique program of study and defend it in order to be a part of IVSP.

Individual Studies students must complete a senior capstone project and are encouraged to engage in internships, research projects, independent studies with faculty, as well as study abroad to supplement their work in the classroom. While IVSP programs are never vocational in nature, drawing from real-life experience as a supplement to the academic curriculum is generally encouraged.

These projects often serve as a way for the students to develop academic connections among the multiple disciplines involved in their programs.

While IVSP gives students the opportunity to create a unique academic program focused on a specific area of study, using courses from multiple academic departments, it does not substitute for or replicate the educational goals of existing University programs, including the Limited Enrollment Programs (LEPs). IVSP programs may not include substantial numbers of courses from LEP departments.

Developing a successful IVSP prospectus takes time and usually involves several meetings to review and edit the draft prospectus. Interested students should contact the IVSP staff and begin the application process early in their academic career. Working closely with the IVSP staff and their prospective faculty mentor, students should plan to complete and submit their IVSP prospectus, preferably during their sophomore year, or in their junior year, before reaching 90 credits.

To be admitted into the Individual Studies Program the student must:

1. Have a clearly defined academic goal that cannot be reasonably satisfied in an existing curriculum at the University of Maryland Maryland, College Park.

2. Have at least 30 earned college credits with at least 12 credits completed at College Park.

3. Have a minimum of a 2.5 GPA in each of their previous two semesters of college, and at least a 2.0 GPA overall.

4. Complete at least 30 additional credits beginning the term following admission to IVSP.

5. Identify an appropriate faculty mentor, preferably tenured or tenure track, with significant undergraduate education experience related to the field of study.

6. Complete a detailed plan of study (prospectus) which is approved by their faculty mentor and then approved by the Individual Studies Faculty Review Board. This proposal will include:

    a. A clear statement of the central academic purpose for their major.

    b. Specific course requirements including at least 27 credits of upper-division major coursework (300 & 400 level) beyond the IVSP courses (IVSP 317, IVSP 318, and IVSP 420).

    c. The list of courses must include at least one writing craft course (in addition to the CORE Fundamental Studies Introduction to Writing and the Professional Writing requirements) selected from an approved list that is available from the Individual Studies staff.

    d. A semester-by-semester plan for the completion of their undergraduate degree within a reasonable period of time.

7. Complete the IVSP Departmental Notification Form in order to notify academic units from which they will take three or more 300-400 level courses.

Following admission, students must:

1. Earn a grade of C or better in all courses required in their IVSP program of study including IVSP 420 as well as a satisfactory grade in IVSP 317.
2. Complete mandatory advising sessions with their faculty mentor and the IVSP staff every semester, including a review of their semester-by-semester academic plan for completion of their IVSP program.
3. If not already completed, work towards immediate completion of the fundamental studies requirements for English composition and mathematics.

For details and further information, visit the IVSP website at www.ivsp.umd.edu.

Lesbian, Gay, Bisexual and Transgender Studies (LGBT)

2212 Marie Mount Hall, 301-405-5428
www.lgbts.umd.edu
lgbts@umd.edu

Director: Dr. Marilee Lindemann

The Program in Lesbian, Gay, Bisexual and Transgender Studies (LGBT) offers an interdisciplinary undergraduate certificate and a minor designed to examine the lives, experiences, identities and representations of LGBT persons, those who are today described as having a minority sexual orientation or who are gender transgressive. Students study LGBT families and communities, cultures and subcultures; histories, institutions, languages and literatures; economic and political lives; and the complex relations of sexual minorities to the culture and experience of the gender conformant and (hetero) sexual majority. LGBT Studies is an interdisciplinary and multidisciplinary field, and promotes the application of new theories and methodologies (e.g., queer, feminist, critical race, and multicultural theories) to established disciplines, and it advances the generation of new knowledge within traditional fields of scholarship. Through study of sexual minorities, students gain an understanding of and respect for other differences in human lives such as age, ability, class, ethnicity, gender, race, and religion. With their faculty advisors, certificate candidates design a program that complements their major field of study.

Certificate Requirements:

21 credits: 15 credits are in required courses, while 6 credits are earned in two elective courses.

A. Required core curriculum for the Certificate in LGBT Studies (15 credits)

1. LGBT200- Introduction to Lesbian, Gay, Bisexual, and Transgender Studies

2. One lower-level course focused on literature, art, or culture by or about LGBT people, either ENGL 265 or CMLT 291;

3. One of the following upper-division courses focused on the personal, social, political, and historical aspects of LGBT people: LGBT 350, PHIL 407, or WMST 494;

4. One of the following upper-division courses focused on literature, art, or culture by or about LGBT people: ENGL 359,459, 465; or LGBT 327

5. One of the following:

   a. LGBT488
   Seminar in LGBT Studies

   b. LGBT386
   Supervised Internship - LGBT Community Organizations

B. Elective courses for the Certificate in LGBT Studies (6 credits)

Students choose six hours of elective credits in consultation with their advisor in LGBT Studies. At least three hours of elective credits must be from upper-division courses (i.e., those numbered 300 or above). Students are encouraged to choose electives to complement their knowledge of LGBT people and issues by exploring disciplines that contrast with the major field of study. Students may select elective courses from the list of core courses above or from a list of approved courses maintained by the program. The list is updated regularly and available at www.lgbts.umd.edu/minor.html. A student may also petition to have any other course fulfill this requirement by providing evidence, usually the syllabus, that a substantial amount of the course work, usually including a term paper, consists of LGBT material.

- Appropriate substitutions for courses listed in categories 2 through 4 above may be made with approval from the Director of LGBT Studies.
- No course earned with a grade below "C" (2.0) will count toward the certificate in LGBT Studies.
- Students may use a maximum of nine credits (or three courses) to satisfy the requirements of both their major and the certificate in LGBT Studies.
- No more than nine of the required credits may be taken at an institution other than the University of Maryland, College Park.
- Students must declare the certificate in LGBT Studies to the Director of LGBT Studies one year prior to their intended graduation to assure appropriate advising and record-keeping.

Minor Requirements:
15 credits: 12 credits are in required courses, while 3 credits are earned in one upper-level elective course.

A. Required core curriculum for the Minor in LGBT Studies (12 credits)

1. LGBT 200--Introduction to Lesbian, Gay, Bisexual, and Transgender Studies

2. One lower-level course focused on literature, art, or culture by or about LGBT people, either ENGL 265 or CMLT 291;

3. One of the following upper-division courses focused on the personal, social, political, and historical aspects of LGBT people: LGBT 350, PHIL 407, or WMST 494;

4. One of the following upper-division courses focused on literature, art, or culture by or about LGBT people: ENGL 359, 459, 465; or LGBT 327.

B. Elective course for the Minor in LGBT Studies (3 credits)

An upper-division elective will complement the required courses. This elective may be a course from categories 3 and 4 above that has not been used to fulfill requirements; or it may be one of the capstone courses in LGBT Studies (LGBT 386 or LGBT 488), or a course chosen from the list of approved electives for the LGBT Studies program. The list of approved electives is available at www.lgbts.umd.edu/minor.html. A student may also petition to have any course fulfill this requirement by providing evidence, usually the syllabus, that a substantial amount of the course work, usually including a term paper, consists of LGBT material.

- Appropriate substitutions for courses listed in categories two through four above may be made with approval from the Director of LGBT Studies.
- No course earned with a grade below "C" (2.0) will count toward the minor in LGBT Studies.
- Students may use a maximum of six credits (or two courses) to satisfy the requirements of both their major and the minor in LGBT Studies. However, courses taken to complete the minor in LGBT Studies may not be used to satisfy the requirements of another minor.
- No more than six of the required credits (or two courses) may be taken at an institution other than the University of Maryland, College Park. However, at least six upper-division credits applied to the minor must be taken at this university.
- Students must declare the minor in LGBT Studies to the Director of LGBT Studies one year prior to their intended graduation to assure appropriate advising and record-keeping.

Letters and Sciences

1117 Hornbake Library, Assistant Dean/Director: Deborah Reid Bryant, Ph. D.
www.ltsc.umd.edu
General Advising: 301-314-8418 or 8419
Pre-Law Advising: prelaw@umd.edu
Credit-by-Exam: 301-314-8418

Letters and Sciences is the academic home for students exploring a variety of fields before selecting a major, for post-baccalaureate students taking additional course work, and for non-degree seeking students taking undergraduate courses. Letters and Sciences may also serve as the academic home for students completing requirements for entry into a Limited Enrollment Program. Letters and Sciences advisors help students to select and schedule courses, plan academic programs, and learn about campus-wide resources. Letters and Sciences collaborates closely with college advising offices, academic departments, and programs across campus and provides a coordinated advising network that features:

Choosing a Major
Letters and Sciences students receive information about and referral to a wide range of academic programs and services including specialized workshop sessions. Letters and Sciences staff specialize in assisting students develop strategies and plans for entering Limited Enrollment Programs.

Markets and Society
Markets and Society is a program for entering freshmen interested in exploring the world of business. The Markets and Society Program helps students to learn about the field of business, refine their career goals, and interact with other students who share their interests.

Learning Communities
Learning Community programs in Letters and Sciences focus on first-year students. They combine a one-credit seminar called Introduction to the University with one or more general education (CORE) courses. The seminars facilitate major and career exploration.

Interim Advising Program

Newly admitted transfer students with more than 60 credits, who were unsuccessful in gaining admission to a Limited Enrollment Program, receive advising and assistance from a Letters and Sciences professional staff member during their first two semesters on campus. For this group of students, the University waives the requirement that all students must declare a major by 60 credits.

Pre-Law Advising

Letters and Sciences offers specialized advising for students interested in law. For further information, see the section on Pre-Law Advising in this catalog and visit www.prelaw.umd.edu

Maryland Center for Undergraduate Research (MCUR)

2100D (2nd Floor) McKeldin Library, 301-314-6786
www.ugresearch.umd.edu
ugresearch@umd.edu

Director: Francis DuVinage

The Maryland Center for Undergraduate Research (MCUR) is an initiative from the Office of the Dean of Undergraduate Studies. Created as a resource for students and faculty, the Center serves as a clearinghouse for both on-campus and off-campus research opportunities for undergraduate students. Additionally, the Center serves as a forum where faculty members can share different models for incorporating undergraduate students into research programs, and ways of infusing undergraduate research into the curriculum.

Among the programs at the MCUR are the Maryland Student Researchers program (MSR) and the Senior Summer Scholars (SSS). MSR provides an opportunity for students to work with faculty mentors on ongoing research projects. Experienced students, who are rising seniors, are encouraged to apply for funding through the Senior Summer Scholars program for summer study with a faculty member. Students new to research as well as students with previous research experience participate in this program.

National Scholarship Office

2403 Marie Mount Hall, 301-314-1289
www.scholarships.umd.edu
scholarships@umd.edu

Director: Francis DuVinage, Ph.D.

The National Scholarships Office at the University of Maryland, College Park aims to provide undergraduates with the best possible information, guidance and support as they learn about and apply for national scholarships.

National scholarships are competitive, prestigious awards that provide opportunities and support for a wide range of enriching experiences, including study abroad, graduate study (and sometimes undergraduate study also), federal employment, teaching, research, and public service. National scholarships are looking for students (with or without financial need) who are developing strong interests and goals - academic and extracurricular - and who want to take advantage of every constructive opportunity that will help them reach their objectives. Just as each national scholarship offers a different kind of opportunity each is also looking for a different range of strengths and interests in its applicants. If you develop a strong academic record, are thoughtful about your choices and devote yourself to activities you care about, you may well find one or more scholarships opportunities of interest to you.

The National Scholarships Office strives to make learning about and applying for national scholarships an enlightening experience. In addition to providing information about national scholarships through our website, through group presentations and through individual advising, we also provide individualized guidance and support at every stage of the application process. We invite you to visit our website and to make an appointment with us to learn more about national scholarships that may help you attain your goals.

Orientation

1102 Cole Field House, 301-314-8217
www.orientation.umd.edu
Director: Gerry Strumpf

The goal of Orientation is to introduce new students to the University of Maryland community University of Maryland community. The Orientation Office offers a wide range of transitional programming and services for students and their families as they prepare to attend the University of Maryland.

New Student Orientation

Held prior to the semester a student enrolls at the University of Maryland, new student orientation for first-time freshmen normally covers two days; orientation for new transfer students covers one day. During New Student Orientation, individuals meet with representatives from their academic college for advising and course scheduling. Undergraduate Orientation Advisors, introduce students to academic and student life at the University of Maryland, including student campus services and resources, and opportunities for involvement on campus.

Parent Orientation
Parents of new University of Maryland students are strongly encouraged to attend a one-day program specifically designed to introduce them to the academic, social, and cultural opportunities of the university and to better prepare them for the issues that are likely to affect their son or daughter throughout their matriculation at the University.

Terp Trips
Terp Trips focus on the continuing transition of parents. Offered to parents on the second day of freshman orientation, these one-day programs combine a trip to an area attraction with connections to other parents and a campus faculty or staff host.

Introduction to the University Seminars
The Orientation Office coordinates new student seminar courses, UNIV100 and 101. These courses introduce students to the world of higher education and, more specifically, to the University of Maryland. Course topics include career/major exploration, successful studying and test-taking strategies, diversity, and involvement within the university.

Pre-College Programs

1107 West Education Annex,www.precollege.umd.edu
pre-college@umd.edu

Executive Director: Georgette Hardy DeJesus

Upward Bound Programs: 301-405-6776
Upward Bound-Math and Science Program (UB-MS): 301-405-1773

The University of Maryland Pre-College Programs in Undergraduate Studies is comprised of three federally and state supported programs:

> Two Upward Bound Programs (UB) and
> Upward Bound-Math and Science Program (UB-MS).

These programs generate the skills and motivation necessary for success in post-secondary education. They immerse high school participants in rigorous academic instruction, tutoring, counseling, and innovative educational experiences throughout the school year and during the six-week summer residential program. Pre-College Programs are part of the Federal TRIO Programs that provide educational opportunity outreach programs designed to motivate and support students from disadvantaged backgrounds.

The UB Programs are open to low-income and/or first-generation college bound high school students in grades 9 through 12, who demonstrate an academic need and want to pursue a four-year postsecondary education. Eligible students must attend target high schools in Prince George's and Montgomery Counties. High school principals, teachers, and counselors recommend students to the program.

Eligibility for the Upward Bound Programs requires that students attend Montgomery Blair, Wheaton, Central, High Point, or Bladensburg High Schools.

The UB-MS is open to students in grades 10 through 12, who demonstrate an academic need and want to pursue post-secondary education programs in fields related to mathematics and science. UB-MS recruits high school students from Potomac and Fairmont Heights High Schools in Prince George's County, MD; Watkins Mill High School in Montgomery County, MD , Edmonston-Westside High School in Baltimore, MD and Bell High School in Washington, DC.

University Honors Program

Anne Arundel Hall, 301-405-6771
www.honors.umd.edu
honors@umd.edu

Director: Dr. William Dorland

The University Honors Program offers special educational opportunities and resources to students with exceptional academic talents. Honors students combine Honors course work with studies in their majors and elective courses to deepen their total educational experience. They broaden their intellectual horizons by selecting Honors (HONR) seminars and Honors versions of some regular courses. Honors seminars offer small class size (capped at 20 students) and academic experiences characterized by active participation, intensive writing, and outstanding faculty who encourage critical thinking and innovation. Most Honors seminars fulfill CORE (general education) requirements.

Students in the University Honors Program may earn an Honors Citation by taking five Honors courses plus a one-credit colloquium and by maintaining an overall 3.2 GPA. Anne Arundel Hall, the Honors Living/Learning Center, houses 100 Honors students, the Portz Library, seminar rooms, faculty office, and lounges. Honors students also live and study together in Queen Anne's, Denton, Wicomico, and Ellicott Halls; many upperclassmen enjoy apartment-style housing in South Campus Commons.

Acceptance of first-year students into the University Honors Program is by invitation based on the standard application to the University of Maryland (by November 1st for best consideration for Honors and merit scholarships). Students with two semesters of full-time college work (excluding AP credits) completed at the University of Maryland or another institution may apply for admission to Honors. Honors Humanities, www.honorshumanities.umd.edu and Gemstone, www.gemstone.umd.edu are more specialized programs within University Honors; they are described under their own headings in this catalog.

In addition to the University Honors Program, about 40 departments or colleges offer advanced, discipline-based Honors programs that provide enriched opportunities, typically involving work with faculty mentors on independent research projects. Most departmental and college Honors programs begin in the junior year; please contact them directly for the admission requirements.

Pre-Transfer Advising

0104 Reckord Armory
301.405.9449 or 9448
www.transferadvising.umd.edu
Assistant Dean: Lisa Kiely

The Pre-Transfer Advising Program promotes academic success and excellence through assessing the readiness of students to transfer to UM and estimating their time to degree completion. Pre-Transfer Advisors provide advising for students interested in transferring from community colleges as well four year schools. Advisors also work closely with staff at the Maryland community colleges.

First Year Book Program

Office of the Dean for Undergraduate Studies
2130 Mitchell Building
www.firstyearbook.umd.edu
Director: Lisa Kiely

Each year since 1993, the University has selected a book for all first year students. The goal of the First Year Book Program (FYB) is to provide a shared intellectual experience for all new students along with the opportunity to discuss the book from a variety of disciplines. Courses, departmental lectures, living/learning programs and student groups all sponsor events that complement a major address by the author and/or other important visitors to campus.

The Universities at Shady Grove (USG)

9636 Gudelsky Drive Rockville MD 20850
301-738-6000
www.shadygrove.umd.edu
USG Executive Director and Associate Vice Chancellor for Academic Affairs, USM:
Dr. Stewart L. Edelstein

The Universities at Shady Grove (USG) is a regional higher education center created under the auspices of the University System of Maryland. Since its inception in 2000, USG has been transformed from a location for part-time evening instruction into a vibrant center offering classes during daytime, evenings, and weekends in both full-time and part-time formats. USG currently serves more than 3,400 graduate and undergraduate students, with more than 1,000 undergraduates enrolled in daytime programs. Nine University System of Maryland (USM) degree-granting institutions collaborate to offer their top degree programs, as well as certificate and continuing education programs, at one convenient location inMontgomery County.

USG provides all the prestige and benefits of a Maryland education during a student's final two years of undergraduate study. Most credit earned atMaryland community colleges will transfer, and students can choose from a variety of majors, with classes offered at times that meet their schedules. At the Universities at Shady Grove campus, students work side-by-side with professors from nationally ranked academic programs. Students can also participate in a growing number of social and academic activities and get involved in community service or student leadership.

The University of Maryland, College Park is one of the powerful partners that make up USG. Students can earn a University of Mary

Maryland, College Park degree at USG and celebrate Terrapin traditions no matter which campus they call home. The University of Maryland, College Park offers seven undergraduate degrees within four different academic departments at Shady Grove.

Biological Sciences Program (BSCI)

1322 Symons Hall, 301-405-6892
www.chemlife.umd.edu
Dr. Joelle Presson, Assistant Dean, Academic Undergraduate Programs
Dr. Tom Stanton, Director, Biological Sciences Shady Grove
Dr. Nancy Trauth-Noben, Assistant Director, Biological Sciences Shady Grove

The Major

Biological Sciences at the University of Maryland at Shady Grove
chemlife.umd.edu/undergraduateprograms/biologicalsciencesprogramatshadygrove

The Biological Sciences Program at the University of Maryland offers a degree program in General Biology (GENB) at Universities at Shady Grove. The Biological Sciences Program at Shady Grove offers the Advanced Program courses normally taken in the junior and senior years.

All Biological Sciences majors complete a common sequence of introductory and supporting courses referred to as the Basic Program. For students matriculating at the Universities at Shady Grove most of these introductory and supporting courses are taken at a community college or at another four-year institution. Depending on space available, students who matriculated at College Park may transfer to the Shady Grove Program in their junior year, where they may complete the Advanced Program in General Biology.

Requirements for the Biological Sciences Major in General Biology (GENB) at Shady Grove
Courses equivalent to these to be taken at an institution that offers lower level course work

I. CORE Program Requirements - 30 Credits
II. Basic Program in Biological Sciences

BSCI105	Principles of Biology I	4
BSCI106	Principles of Biology II	4
BSCI223	General Microbiology	3
BSCI222	Principles of Genetics	4
MATH130 **or**	Calculus for Life Sciences I **or**	3
MATH140	Calculus I	4
MATH131 **or**	Calculus for Life Sciences II **or**	
MATH141	Calculus II	4
CHEM131/132	General Chemistry I w/Lab	4
CHEM231/232	General Chemistry II w/Lab	4
CHEM241/242	Organic Chemistry II w/ Lab	4
CHEM271/272*	General Chemistry II w/ Lab	4

* CHEM272 Bioanalytical Chemistry Lab is not offered at most institutions. Students accepted into the UMCP Shady Grove Biological Sciences may substitute a General Chemistry II Lab for this course

III.Courses taken at Universities at Shady Grove

PHYS121	Fundamentals of Physics I	4
PHYS122	Fundamentals of Physics II	4
GENB	Advanced Program in General Biology	27 minimum
ELECT	Electives	20-25
	Total credits required to graduate	**120**

Advising

Advising is mandatory during each pre-registration period for all Biological Sciences majors. Advising for students interested in or enrolled in the Shady Grove Program is available from the Director or Assistant Director. Call 301-738-6207 for an advising appointment.

The Robert H. Smith School of Business, Shady Grove

www.rhsmith.umd.edu/undergrad/shadygrove/

Dean: Dr. G. Anandalingam
Associate Dean(s): Patricia Cleveland
Director of Programs at Shady Grove: Luke Glasgow
College Park Location: 1570 Van Munching Hall, 301-405-2286
Shady Grove Location: Building III, Room 5147, 301-738-6079

The Robert H. Smith School of Business is an internationally recognized leader in management education and research for the digital economy. The faculty are scholars, teachers, and professional leaders with a commitment to superior education in business and management, specializing in accounting, finance, information systems, operations management, management and organization, marketing, logistics, transportation and supply chain management. The Smith School is accredited by AACSB International - The Association to Advance Collegiate Schools of Business, the premier accrediting agency for bachelor's, master's and doctoral degree programs in business administration and accounting, www.aacsb.edu.

The Smith School of Business offers students the opportunity to complete the junior-senior curriculum in four majors at the Shady Grove campus including (1) Accounting; (2) General Business-Entrepreneurship Fellows Program; (3) International Business; and (4) Marketing. For details on the majors offered at Shady Grove visit www.rhsmith.umd.edu/undergrad/shadygrove.html.

Admission Requirements

All students applying for admission to the Robert H. Smith School of Business as transfer students, whether internal transfers already enrolled at UMCP or external transfer students entering the university for the first time, will be subject to competitive admission for a limited number of spaces in the Smith School at either the College Park or Shady Grove location. For complete details on admissions to the Smith School @ Shady Grove visit www.rhsmith.umd.edu/undergrad/shadygrove/admissions.aspx.

Statement of Policy on Transfer of Credit from Community Colleges

It is the practice of the Smith School of Business to consider for transfer from a regionally accredited community college only the following courses in business administration: an introductory business course, business statistics, introduction to computing (equivalent to BMGT 201), or elementary accounting. Thus, it is anticipated that students transferring from another regionally accredited institution to Shady Grove will have devoted the major share of their academic effort below the junior year to the completion of basic requirements in the liberal arts. A total of 60 semester hours from a community college may be applied toward a degree from the Smith School of Business.

Other Institutions

The Smith School of Business normally accepts transfer credits from regionally accredited four-year institutions. Junior- and senior-level business courses are accepted from colleges accredited by the Association to Advance Collegiate Schools of Business (AACSB). Junior- and senior- level business courses from other than AACSB-accredited schools are evaluated on a course-by-course basis to determine transferability.

The Smith School of Business requires that at least 50 percent of the business and management credit hours required for a business degree be earned at the University of Maryland, College Par

Undergraduate Degree Requirements/Degree Options

Upon completion of all degree requirements, students at the Smith School@Shady Grove will earn a Bachelor of Science (B.S.) degree from the Robert H. Smith School of Business at the University of Maryland College Park. In addition, the Smith School of Business awards Master of Business Administration (M.B.A.), Master of Science (M.S.), and Doctor of Philosophy (Ph.D.). Information concerning admission to the M.B.A. or M.S. program is available at www.rhsmith.umd.edu.

Summary of Bachelor of Science Degree Requirements (all curricula)

At least 45 hours of the 120 semester hours of academic work required for graduation must be in business and management subjects. A minimum of 58 hours of the required 120 hours must be in 300- or 400-level courses. In addition to the requirement of an overall cumulative grade point average of 2.0 (C average) in all university course work. Effective Fall 1989, all business majors must earn a 2.0 or better in all required courses, including Economics, Mathematics, and Communication.

Freshman-Sophomore School Requirements

BMGT220 Principles of Accounting I (3 credits)
BMGT221 Principles of Accounting II (3 credits)
ECON200 Principles of Microeconomics (3 credits)
ECON201 Principles of Macroeconomics (3 credits)

One from: 3/4 credits
MATH220 Elementary Calculus I
MATH140 Calculus I

One from: 3 credits
BMGT230[1] Business Statistics
BMGT231[2] Statistical Models for Business

One from: 3 credits
COMM100 Foundations of Speech Communication
COMM107 Speech Communication
COMM200 Critical Thinking and Speaking

Total: 23-24

1 The following courses are approved substitutes for BMGT230: BIOM301, ECON321, EDMS451, GEOG305, PSYC200, and SOCY201.

2 The following courses are approved substitutes for BMGT231: ENEE324, ENME392, or STAT400.

Junior-Senior School Requirements

BMGT301 Introduction to Information Systems (3 credits)
BMGT340 Business Finance (3 credits)
BMGT350 Marketing Principles and Organization (3 credits)
BMGT364 Management and Organizational Theory (3 credits)
BMGT367 Career Search Strategies in Business (1 credit)
BMGT380 Business Law (3 credits)
BMGT495 Business Policies (3 credits)

Total: 19

Economics Requirements 3-6 credits

3-6 credits of approved upper-level economics courses are required by the Smith School of Business. Visit www.rhsmith.umd.edu/undergrad/shadygrove/ the specific requirements for each major offered at Shady Grove.

Major Requirements

In addition to the Smith School of Business Bachelor of Science requirements listed above, generally another 18-24 credits are required for each major. See www.rhsmith.umd.edu/undergrad/shadygrove/ the specific requirements for each major offered at the Smith School@Shady Grove.

Additional Information

For more information on the Smith School of Business undergraduate program at Shady Grove visit www.rhsmith.umd.edu/undergrad/shadygrove/

B.A. in Communication at Shady Grove

9630 Gudelsky Drive Camille Kendall Academic Center, Suite 5123
Rockville, MD 20850
301-738-6002
www.shadygrove.umd.edu/programs/undergraduate/communication/umcp/communication.cfm

Chair: E. Toth
Director: L. Waks (Director, Senior Lecturer)
Coordinator: Caroline Harper (Program Coordinator)
Coordinator: Julie Gowin (Outreach Coordinator)
Professors: E. Fink, R. Gaines, J. Klumpp, S. Parry-Giles, A. Wolvin
Associate Professors: L. Aldoory, D. Cai, D. Hample, T. Parry-Giles, M. Tonn, M. Turner
Assistant Professors: S. Khamis, M. Liu, K. Maddux, N. Ofulue, T. Reimer

Lecturers: R. Coleman (Lecturer), S. Simon (Lecturer), B. Swartz (Lecturer), J. Tenney (Lecturer),
R. Toth (Lecturer)
Affiliate Professors: J. Fahnestock (ENGL), A. Kruglanski (PSYC), D. Rosenfelt (WMST)
Affiliate Associate Professors: M. Gelfand (PSYC), S. McDaniel (KNES)
Professors Emeriti: J. Grunig, L. Grunig
Visiting Faculty: K. Kendall (Res Prof, Visit Prof)

The Major at Shady Grove

The department offers an exciting curriculum that prepares students for academic and professional careers in business, government, health, education, social and human services, and related fields. Courses offered by the department include persuasion and social influence, rhetoric and the analysis of messages, political communication, organizational communication, public relations strategies, negotiation and conflict management, and intercultural communication. All students in the program at Shady Grove are required to complete mandatory advising each semester.

Program Learning Outcomes

Upon completion of the degree program in Communication, students should be able to demonstrate the following knowledge and skills:

1. An ability to distinguish among a variety of theoretical approaches in the communication discipline and use them appropriately and effectively in academic work.

2. An ability to conduct research and write research reports employing social scientific and/or humanistic approaches in the communication discipline.
3. An ability to argue clearly and effectively in a speech.

Academic Programs and Departmental Facilities

The Center for Political Communication and Civic Leadership unites research, education, and public engagement to foster democratic communication by a diverse people. See www.comm.center.umd.edu.

The Center for Risk Communication Research (CRCR) advances dialogue and understanding about communication's role in controlling and preventing risk; about how publics perceive risk communication; and about the political, economic and social contexts for risk communication. Scholars associated with the CRCR examine health, food safety, security, and environmental risks. See www.comm.riskcenter.umd.edu.

The department's Media Center at College Park is designed to provide one-on-one tutoring and instructional support to further students' oral communication skills and confidence. The Media Center is equipped with cameras and recording equipment to tape speeches and presentations for practice and critique. Students may also utilize resources available at Shady Grove through the Office of Information Technology.

Admission to the Major

Communication is a Limited Enrollment Program in which applicants should have an overall GPA of 2.7 of better, and a grade of "C" or better in each of the three courses specifically required by the major (COMM250, COMM 107, Statistics, or their equivalents). Applicants should also attain junior standing (56 or more transferable college credits) by the time of enrollment. For more information on admission and lower-level coursework requirements, please visit the Communication web site or the Transfer Credit Center website at www.tce.umd.edu. Requirements for the major are as follows:

a. Complete 50% of the CORE requirements, including Fundamental Studies requirements in Mathematics and English.

b. Complete one of the following courses with a grade of "C" or better: BMGT230, CCJS200, EDMS451, PSYC200, SOCY201, or equivalent.

c. Complete COMM107, COMM 200, COMM230, or equivalent with a grade of "C" or better

d. Complete COMM250 or equivalent with a grade of "C" or better and

e. A cumulative GPA of 2.7 or better

Students may repeat only one of the Gateway courses and that may be repeated only once in their attempt to meet the requirements.

Transfer Students

Internal and external transfer students who meet the Gateway requirements specified above and have a cumulative GPA of 2.7 in all college-level coursework may apply to the program up until and including the semester in which they reach 60 credits. (Students are encouraged to apply at any time prior to reaching 60 credits as long as the requirements have been completed.)

For those students who meet the Gateway requirements and who apply after the semester in which they reach 60 credits, admission is competitive and on a space-available basis.

Newly admitted transfer students who have more than 60 credits have only their first semester at the University of Maryland to complete the Gateway requirements.

Appeals

All students may appeal admission decisions. Those students denied admission may appeal to the university's Office of Undergraduate Admissions.

Requirements for the Major

The course of study for a Communication major must satisfy all of the following requirements:

		Credits
COMM107	Oral Communication: Principles and Practices, **OR**	3
COMM200	Critical Thinking and Speaking, **OR**	3
COMM230	Argumentation and Debate	3
COMM250	Introduction to Communication Inquiry	3
COMM400	Research Methods in Communication	3
COMM401	Interpreting Strategic Discourse	3
	Communication Studies Track	
COMM402	Communication Theory and Process	3
	One from:	3
COMM420	Theories of Group Discussion	
COMM424	Communication in Complex Organizations	
COMM425	Negotiation and Conflict Management	
COMM426	Conflict Management	
COMM435	Theories of Interpersonal Communication	
COMM470	Listening	
COMM475	Persuasion	
COMM477	Discourse Analysis	
COMM482	Intercultural Communications	

	One from:	3
COMM330	Argumentation and Public Policy	
COMM360	The Rhetoric of Black America	
COMM450	Ancient and Medieval Rhetorical Theory	
COMM451	Renaissance & Modern Rhetoric Theory	
COMM453	The Power of Discourse in American Life	
COMM455	Speechwriting	
COMM460	Public Life in American Communities, 1634-1900	
COMM461	Voices of Public Leadership in the Twentieth Century	
COMM469	The Discourse of Social Movements	
COMM471	Public Communication Campaigns	
COMM476	Language, Communication, and Action	
COMM	COMM Elective	
COMM300/400	Upper Level COMM Electives	12
	One Statistical Analysis from:	3-4
PSYC200	Statistical Methods in Psychology	
SOCY201	Introductory Statistics for Sociology	
BMGT230	Business Statistics	
EDMS451	Introduction to Educational Statistics or an equivalent course - see advisor	
	One Structural Analysis of Language from:	3
LING200	Introductory Linguistics	
HESP120	Introduction to Linguistics	
ANTH380	Culture and Discourse or an equivalent course - see advisor	

COURSES	*Communications Studies:* Courses related to Communication Studies in one department other than COMM	9

Notes:

- Because the department's curriculum changes over time, the department's Undergraduate Director may approve other appropriate Communication courses to meet the requirements for each track.
- Courses required for the Communication major, but taken outside COMM, may be used to satisfy CORE requirements.
- Only 3 credits of COMM386 may apply toward the major.

Advising

Advising is available throughout the year in the Camille Kendall Academic Center, Suite 5123. Students should check Testudo for their registration date and for any mandatory advising blocks.

Undergraduate Research Experiences

Research experiences include assisting on faculty research projects, participating in special team research projects, and working with the department's Center for Political Communication and Civic Leadership and Center for Risk Communication Research.

Fieldwork Opportunities

To further enhance learning and career training, the department incorporates special hands-on classes such as Health Communication Campaigns, Visual Communication, Web Design, and PR Event Planning. The department also strongly promotes internship and service learning opportunities with local and state businesses and institutions, and encourages students' participation in a student-run clubs.

Internships

The department's internship program helps communication majors gain professional experience, build a professional portfolio, and take the first steps toward a career. The department structures its internship program around a course, COMM386: *Experiential Learning*, offered each school term.

Student Societies and Professional Organizations

Social and academic activities are available to students by participating in the following student organizations: the Undergraduate Communication Association, the Lambda Pi Eta Honor Society, and the Maryland chapter of the Public Relations Student Society of America.

Scholarships and Financial Assistance

The department offers two scholarships: the Levick Crisis Communication Scholarship and the Chaim and Miriam Bentzlovitch Scholarship to students who exhibit academic excellence. Each year the department distributes a call for applications through e-mail.

Criminology and Criminal Justice

9630 Gudelsky Drive, Room 5105
301-738-6307
www.shadygrove.umd.edu/programs/undergraduate/criminology-and-criminal-justice/umcp/criminology-and-criminal-justice.cfm

Chair: S. Simpson
Shady Grove Program Director: S. Gerstenblith
Lecturers: C. Roberts White, F. Kolodner, N. Romeiser, S. Eastman, L. Reynolds, M. Thomas,R. Shusko, M. Janney

The Major

Criminology and criminal justice encompasses the study of both the causes of, and responses to crime. It involves studying individual, group, and mass behavior, as well as the institutions, professions, and laws that exist to detect, control, and ameliorate the effects of crime. As a discipline, criminology and criminal justice is situated at the nexus of other social science disciplines such as sociology, psychology, and government, in addition to public policy and legal studies.

The University of Maryland, College Park offers its Bachelor of Arts in Criminology & Criminal Justice at the Universities at Shady Grove. Students transfer into this Program after completing their freshman and sophomore years elsewhere, typically at a junior college. Through this Program, students complete their junior- and senior-year coursework at USG with the option to attend full- or part-time.Upon completion of this Program, students are awarded a University of Maryland, College Park B.A. degree.

Program Learning Outcomes

Having completed the CCJS degree program, students should have acquired the following knowledge and skills:

1. Students will demonstrate basic knowledge of major criminology and criminal justice content areas.
2. Students will demonstrate a basic knowledge of descriptive and inferential statistics appropriate to the social sciences.
3. Students will demonstrate competence in basic social science research methods.

Requirements for the Major

The major in Criminology & Criminal Justice comprises 30 hours of coursework in criminology and criminal justice. Eighteen (18) hours of supporting sequence selected from a list of social and behavioral science courses are required (list is available in the CCJS advising office and on the department website). No grade lower than a C- may be used toward the major. An average grade of C is required in the supporting sequence. Nine (9) hours of the supporting sequence must be at the 300/400 level. In addition, MATH111 or higher (MATH220, MATH140 or STAT100, but not MATH113 or MATH115) and CCJS200 (or an approved course in social statistics) must be completed with a grade of 'C' or better. A grade of 'C' or better is required in MATH111 as a prerequisite to CCJS200.

	Major Requirements	**Credits**
CCJS100	Introduction to Criminal Justice	3
CCJS105	Criminology	3
CCJS230	Criminal Law in Action	3
CCJS300	Criminological and Criminal Justice Research Methods	3
CCJS340	Concepts of Law Enforcement Administration	3
CCJS350	Juvenile Delinquency	3
CCJS ELECT	CCJS Electives (3 courses)	9
	One from:	3
CCJS451	Crime and Delinquency Prevention	
CCJS452	Treatment of Criminals and Delinquents	
CCJS454	Contemporary Criminological Theory	
	Total Credits	**30**
	Supporting Sequence	
SUPPORT	Lower or Upper level courses from approved list (3 courses)	9
SUPPORT UL	Upper level courses from approved list (3 courses)	9
	One from:	3-4
MATH111	Introduction to Probability	
MATH220	Elementary Calculus I	
MATH140	Calculus I	
STAT100	Elementary Statistics and Probability	
	One from:	3-4
CCJS200	Statistics for Criminology and Criminal Justice	
ECON321	Economic Statistics	
PSYC200	Statistical Methods in Psychology	
SOCY201	Introductory Statistics for Sociology	

BMGT230	Business Statistics
	Total credits - Major and Supporting 54
	Electives for CCJS Majors *(most courses are 3 credits)*
CCJS234	Law of Criminal Investigation
CCJS310	Criminal Investigations
CCJS320	Introduction to Criminalistics
CCJS330	Contemporary Criminological Issues
CCJS331	Contemporary Legal Policy Issues
CCJS332	Major Transitions: From Undergraduate to Professional
CCJS352	Drugs and Crime
CCJS357	Industrial and Retail Security Administration
CCJS359	Field Training in Criminology and Corrections
CCJS360	Victimology
CCJS370	Race, Crime and Criminal Justice
CCJS386	Experiential Learning
CCJS388H	Independent Reading Course in Criminology and Criminal Justice - Honors
CCJS389H	Independent Research in Criminology and Criminal Justice - Honors
CCJS398	Law Enforcement and Field Training
CCJS399	Independent Study in Criminology and Criminal Justice
CCJS400	Criminal Courts
CCJS432	Law of Corrections
CCJS444	Advanced Law Enforcement Administration
CCJS451	Crime and Delinquency Prevention
CCJS452	Treatment of Criminals and Delinquents
CCJS453	White Collar and Organized Crime
CCJS454	Contemporary Criminological Theory
CCJS455	Dynamics of Planned Change in Criminal Justice I
CCJS456	Dynamics of Planned Change in Criminal Justice II
CCJS457	Comparative Criminology and Criminal Justice
CCJS461	Psychology of Criminal Behavior
CCJS462	Special Problems in Security Administration
CCJS498	Selected Topics in Criminology and Criminal Justice

Other Requirements for the Major

The CCJS Department enforces all prerequisites and does not oversubscribe students to courses that are closed.

Advising

All majors are strongly encouraged to see an advisor at least once each semester. Advising is available on a walk-in basis between 10 am and 3 pm Monday through Thursday or by appointment in theCamille Kendall Academic Center (Building III), room 5103. Students must complete all course prerequisites and obtain department permission from CCJS Advising to enroll in most CCJS classes. Call 301-738-6031 or 301-738-6307 or email sgerstenblith@crim.umd.edu .

Internships

Requirements for Internship Placements

The internship must be a learning experience involving work in a criminal justice or criminological setting. Interns are expected to gain valuable information which will add to their overall understanding of the field of criminology and criminal justice. Internship positions must center around gaining new material over the course of the semester and are expected to involve some degree of ongoing training/learning for the intern. Internship placements are subject to the approval of the Internship Director.

Internship Eligibility

Interns must meet the following criteria:

- Interns must be CCJS majors
- Interns must have completed a minimum of 56 credits at the time of application
- Interns must have a cumulative GPA of at least 2.5 at the time of application
- Interns must work 40 hours per credit over the course of the semester
- A maximum of 6 internship credits per semester and a total of 12 internship credits overall will be permitted
- Internship credit will not be approved for current or previously held jobs

Interns must register themselves for the internship prior to the end of the semester's schedule adjustment period. Obtaining Departmental approval for the internship does NOT register the student for the class. Additional information about internships can be picked up from the CCJS advising office in Building III, room 5103.

Student Societies and Professional Organizations

There are two Student Societies available for membership for CCJS majors: the Criminal Justice Student Association (CRIMSA) and Alpha Phi Sigma Honor Society (APS).

The Criminal Justice Student Association (CRIMSA) is dedicated to supplementing our members' academic experience by providing extracurricular opportunities to further explore critical issues involving criminology and criminal justice. Through a regular program of speakers, agency demonstrations, and community service projects, the CRIMSA provides students with valuable information for making decisions about career choices, further graduate level study, and law school. CRIMSA provides students with opportunities for academic and social interaction, and access to criminology and criminal justice researchers, teachers, and practitioners representing a variety of government, academic and commercial corporate and non-profit organizations. All Universities at Shady Grove students, regardless of home institution or major, are eligible for CRIMSA membership. CRIMSA meetings and programs are held at least monthly during the Fall and Spring semesters. CRIMSA members pay a one-time membership fee of $30.

Alpha Phi Sigma (APS) is a National Criminal Justice Honor Society founded 1942 and membership is open to CCJS majors who have completed at least 40 total credits with at least 12 credits in CCJS courses. Undergraduate Applicants must have an overall GPA of at least a 3.2 and a major GPA of at least 3.4. Graduate student applicants must have a 3.4 overall GPA. Applicants must fill out an application, submit an official or unofficial transcript, and a check (personal check is fine) made out to Alpha Phi Sigma for $55. The local chapter's name is Omega Iota. Completed applications, check, and transcripts should be submitted to Dr. Gerstenblith in Building III, room 5105. Applications are processed throughout the academic year. You will be notified when you have been officially accepted. Applications are available from Dr. Gerstenblith.

Awards and Recognition

Each semester the department selects the outstanding graduating senior for the Peter J. Lejins award.

7. Departments, Majors, and Programs

ACCOUNTING (BMGT)

The Robert H. Smith School of Business
1570 Van Munching Hall, 301-405-2286
www.rhsmith.umd.edu/undergrad
Chair: M. Loeb
Professors: L. Gordon, O. Kim, M. Loeb, S. Loeb
Associate Professors: S. Cheng (Assoc Prof), R. Hann (Assoc Prof)
Assistant Professors: S. Brown (Asst Prof), L. Zhou (Visit Asst Prof)
Lecturers: P. Basu (Tyser Teaching Fellow), G. Bulmash (Tyser Teaching Fellow), C. Linsley (Tyser Teaching Fellow), J. McKinney (Tyser Teaching Fellow), G. Pfeiffer
Adjunct Professors: E. Cantor (Lecturer), E. Folsom (Lecturer), R. Hall (Lecturer), K. Hardy (Lecturer), M. Lavine (Lecturer), P. McNamee (Lecturer), P. McPhun (Lecturer), L. Mostow (Lecturer), S. Rose (Lecturer), V. Rymer (Lecturer), D. Sites (Lecturer), C. Stevens (Lecturer), N. Webb (Lecturer)
Visiting Faculty: M. Finch (Tyser Teaching Fellow)

The Major

Accounting, in a limited sense, is the analysis, classification, and recording of financial events and the reporting of the results of such events for an organization. In a broader sense, accounting consists of all financial systems for planning, controlling, and appraising performance of an organization. Accounting includes among its many facets: financial planning, budgeting, accounting systems, financial management controls, financial analysis of performance, financial reporting, internal and external auditing, and taxation. The accounting curriculum provides an educational foundation for careers in public accounting, management, whether in private business organizations, government or nonprofit agencies, or consulting. Two tracks are provided: The Public Accounting Track leading to the CPA (Certified Public Accounting) and the Management Accounting/Consulting Track***Please note:*** Currently, only the Public Accounting track is available.

Admission to the Major

See Robert H. Smith School of Business entry in chapter 6 for admission requirements.

Requirements for the Major

	All Accounting Majors:	**Credits**
BMGT310	Intermediate Accounting I	3
BMGT311	Intermediate Accounting II	3
BMGT321	Managerial Accounting	3
BMGT326	Accounting Systems	3
	Accounting Majors must complete an additional 12 credits from one of the following tracks.	
	Public Accounting Track:	
BMGT323	Taxation of Individuals*	3
BMGT411	Ethics and Professionalism in Accounting*	3
BMGT422	Auditing Theory & Practice*	3
	One of the following:	3
BMGT410	Government Accounting	
BMGT417	Taxation of Corporations, Partnerships and Estates	
BMGT423	Fraud Examination	
BMGT424	Advanced Accounting	
BMGT427	Advanced Auditing Theory & Practice	
BMGT428	Special Topics in Accounting	
	Management Accounting/Consulting Track:	
BMGT426	Advanced Managerial Accounting	3
	Three of the following:	9
BMGT305	Survey of Business Information Systems and Technology	
BMGT323	Taxation of Individuals*	
BMGT332	Operations Research for Management Decisions	
BMGT385	Operations Management	
BMGT402	Database Systems	
BMGT403	Systems Analysis and Design	
BMGT410	Government Accounting	
BMGT411	Ethics and Professionalism in Accounting*	
BMGT417	Taxation of Corporations, Partnerships and Estates	
BMGT423	Fraud Examination	
BMGT424	Advanced Accounting	
BMGT428	Special Topics in Accounting	
BMGT430	Linear Statistical Models in Business	
BMGT434	Introduction to Optimization	
BMGT440	Advanced Financial Management	
BMGT446	International Finance	

	Upper Level Economics Requirement *One of the following courses:*	3
ECON305	Intermediate Macroeconomic Theory and Policy	
ECON306	Intermediate Microeconomic Theory	
ECON330	Money and Banking	
ECON340	International Economics	
	Total Credits for Accounting and Economics	27

** Required for CPA in Maryland*

In addition to the major requirements listed above, please consult Chapter 6 or www.rhsmith.umd.edu for a listing of additional Smith School degree requirements that apply to all Smith School majors.

The basic educational requirements of the Maryland State Board of Public Accountancy to sit for the CPA examination are a baccalaureate or higher degree with a major in Accounting or with a non-accounting degree supplemented by course work the Board determines to be substantially the equivalent of an Accounting major. Students planning to take the CPA examination for certification and licensing outsideMaryland should determine the educational requirements for that state and arrange their program accordingly.

Since June 30, 1999, all applicants who desire to take the CPA examination in Maryland have been required to have completed 150 semester hours of college work as well as other specified requirements.

Aerospace Engineering (ENAE)

A. James Clark School of Engineering
3181 Glenn L. Martin Hall, 301-405-2376
www.aero.umd.edu
Chair: I. Chopra (Professor & Interim Chair)
Professors: R. Celi, A. Flatau, W. Fourney, J. Hubbard, S. Lee, J. Leishman, M. Lewis, D. Pines (Dean), N. Wereley
Associate Professors: D. Akin, J. Baeder, C. Cadou, R. Sanner, B. Shapiro, A. Winkelmann, K. Yu
Assistant Professors: J. Humbert, D. Paley, R. Sedwick
Lecturers: B. Barbee, J. Didion, L. Healy, J. Hrastar, D. Israel, K. Lewy, J. Mitchell, E. Morelli, V. Nagaraj, D. Palumbo, B. Roberts, N. Roop, D. Van Wie
Affiliate Associate Professors: A. Marshall
Professors Emeriti: J. Anderson, E. Jones
Visiting Faculty: M. Bowden (Visit Asst Prof), F. Schmitz (Visit Prof), M. Tishchenko (Visit Prof)

The Major

Aerospace engineering is concerned with the processes, both analytical and creative, that are involved in the design, manufacture and operation of aerospace vehicles within and beyond planetary atmospheres. These vehicles range from helicopters and other vertical takeoff aircraft at the low-speed end of the flight spectrum, to spacecraft traveling at thousands of miles per hour during launch, orbit, transplanetary flight, or re-entry, at the high-speed end. In between there are general aviation and commercial transport aircraft flying at speeds well below and close to the speed of sound, and supersonic transports, fighters, and missiles which cruise supersonically. Although each speed regime and each vehicle poses its special problems, all aerospace vehicles can be addressed by a common set of technical specialties or disciplines.

The subdisciplines of Aerospace Engineering are: aerodynamics, flight dynamics, propulsion, structures, and "design". Aerodynamics addresses the flow of air and the associated forces, moments, pressures, and temperature changes. Flight-dynamics addresses the motion of the vehicles including the trajectories, the rotational dynamics, the sensors, and the control laws required for successful accomplishment of the missions. Propulsion addresses the engines which have been devised to convert chemical (and occasionally other forms) energy into useful work, to produce the thrust needed to propel aerospace vehicles. Structures addresses material properties, stresses, strains, deflection, and vibration along with manufacturing processes as required to produce the very light weight and rugged elements needed in aerospace vehicles. Aerospace "design" addresses the process of synthesizing vehicles and systems to meet defined missions and more general needs. This is a process that draws on information from the other subdisciplines while embodying its own unique elements. The Aerospace Engineering program is designed to provide a firm foundation in the various subdisciplines.

Courses offered by this department may be found under the following acronym: ENAE

Program Objectives

1. Prepare future aerospace engineers who will be successful in their careers, including industry, government service, and academia, in the State of Maryland and beyond.

2. Prepare students to solve relevant problems in a) aerodynamics,b) structures, c) dynamics and controls,d) propulsion, and e) systems and design, with a focus in either the aeronautical or space areas.

3. Enable students to relate their fundamental physics, math and engineering studies to the many practical aspects of aerospace engineering research, development, and practice.

4. Prepare future aerospace engineers who are able to integrate their knowledge of engineering sub-disciplines to produce useful product designs.

5. Promote innovative educational activities to challenge students and improve the learning experience, including design presentations, hands-on laboratory experiences, novel use of Internet information technology, and independent research projects.

6. Seek continually to improve course offerings and curricula, while attracting the best students possible and improving the national stature of the program.

7. Prepare future aerospace engineers who understand the context in which their profession is practiced, and who are able to adapt to future developments in both technology and the employment market.

Program Learning Outcomes

1. Students will develop critical reasoning and thinking skills.
2. Students will develop written and oral communication skills.
3. Students will develop science and quantitative reasoning skills.

4. Students will develop information literacy skills.
5. Students will develop technology fluency.

Academic Programs and Departmental Facilities

The Aerospace Engineering Department has a number of facilities to support education and research across a range of special areas. The department has subsonic wind tunnels with test sections ranging from a few inches up to 7.75 feet by 11.00 feet as well as a supersonic tunnel with a 6 inch by 6 inch test section. There are a number of structural test machines with capabilities up to 220,000 pounds for static loads and 50,000 pounds for dynamic loads. The department also has experimental facilities to test helicopter rotors in hover, in forward flight, and in vacuum to isolate inertial loads from aerodynamic loads. There is an anechoic chamber for the investigation of noise generated by helicopters, and an autoclave and other facilities for manufacturing and inspecting composite structures. The neutral buoyancy facility, which investigates the assembly of space structures in a simulated zero gravity environment, is supported by robots and associated controllers. There are also many computers and workstations that provide local computing capability and extensive network access to campus mainframes, supercomputing centers, and all the resources of the Internet.

Admission to the Major

Admission requirements are the same as those of other Engineering Departments. For admission information please see A.James Clark School of Engineering under The Colleges and School section of this site.

Requirements for the Major

	Freshman Year	**Credits First Sem**	**Credits Second Sem**
ENES100	Introduction to Engineering Design *(**can be taken first or second semester)*	3**	
ENAE100	The Aerospace Engineering Profession	1	
CHEM135	General Chemistry for Engineers	3	
MATH140/141	Calculus I, II	4	4
PHYS161	General Physics I		3
ENES102	Statics *(**can be taken first or second semester)*		3**
ENAE202	Aerospace Computing		3
CORE	CORE Program Requirements	3	3
	Total Credits	**14**	**16**

	Sophomore Year	**Credits First Sem**	**Credits Second Sem**
ENES220	Mechanics of Materials	3	
ENAE283	Introduction to Aerospace Systems	3	
MATH241	Calculus III	4	
ENAE200	The Aerospace Engineering Profession II		1
ENME232 **or** ENME320	Thermodynamics		3
MATH246	Differential Equations		3
MATH461 MATH 240	Linear Algebra for Scientists and Engineers **or** Introduction to Linear Algebra		3-4
PHYS260/261	General Physics II	4	
PHYS270/271	General Physics III		4
CORE	CORE Program Requirements	3	3
	Total Credits	**17**	**16**

	Junior Year	**Credits First Sem**	**Credits Second Sem**
ENAE311	Aerodynamics I	3	
ENAE301	Dynamics of Aerospace Systems	3	
ENAE362	Aerospace Instrumentation and Experimentation	3	
ENAE324	Aerospace Structures		4
ENAE432	Control of Aerospace Systems		3
ENAE380	Flight Software Systems	3	
ENGL393	Technical Writing		3
CORE	CORE Program Requirements	3	3
	Aeronautical Track:		
ENAE414	Aerodynamics II		3
	Space System Track:		
ENAE404	Space Flight Dynamics		3
	Total Credits	15	16

	Senior Year	**Credits First Sem**	**Credits Second Sem**
ENAE464	Aerospace Engineering Lab	3	
ENAE423	Vibration & Aeroelasticity		3

ENAE398* ENAE 400s*	Honors Research Project, **or** one 400 level ENAE course		3
ELECTIVE+	Technical Elective; see note below		3
CORE	CORE Program Requirements	3	3
	Aeronautical Track:		
ENAE403	Aircraft Flight Dynamics	3	
ENAE455	Aircraft Propulsion & Power	3	
ENAE481	Principles of Aircraft Design	3	
ENAE482	Aeronautical Systems Designs		3
	Space System Track:		
ENAE441	Space Navigation & Guidance	3	
ENAE457	Space Propulsion & Power	3	
ENAE483	Principles of Space Systems Design	3	
ENAE484	Space Systems Design		3
	Total Credits	**15**	**15**

** Only one of ENAE 398, 488 or 499 may be used for these electives.*

+*One 300/400 level course in Engineering, Mathematics, or Physical Sciences that has been approved for this purpose by the Undergraduate Program Director.*

Minimum Degree Requirements: The fulfillment of all Department, School, and University requirements. A minimum of 124 credits are required for an Aerospace Engineering degree.

Students must select a track. All courses in either the Aeronautical or Astronautical track must be completed. Students in either track who wish to gain a broader education across the aeronautical or space application areas can take courses required in the other track as electives.

Academic Benchmarks: Students pursuing the major should review the academic benchmarks established for this program. See: www.4yearplans.umd.edu. Students will be periodically reviewed to insure they are meeting benchmarks and progressing to the degree. Students who fall behind program benchmarks are subject to special advising requirements and other interventions.

Aerospace Electives

The Department offers a range of electives. The following courses have recently been offered as electives for the undergraduate degree:

ENAE398H	Honors Research	
ENAE415	Helicopter Theory	3
ENAE416	Viscous Flow & Aerodynamic Heating	3
ENAE424	Design &Manufacture of Computer Prototypes	
ENAE425	Mechanics of Composite Structures	3
ENAE426	Computer-Aided Structural Analysis and Design	3
ENAE471	Aircraft Flight Testing	3
ENAE488B	Intro to Computational Structural Dynamics	3
ENAE488M	High Speed Aerodynamics	3
ENAE488P	Product Design	3
ENAE488R	Hybrid Rocket Design	3
ENAE488W	Design of Remotely Piloted Vehicles	3
ENAE499	Elective Research *(Repeatable to 6 credits)*	3

Other Requirements for the Major

See Chapter 6 for minimum grade requirements in key prerequisite courses for engineering students. Students should follow the sequence of courses as outlined in the aerospace engineering degree requirements and four-year plan.

Advising

Advising is mandatory. Each student is assigned to a faculty member who must be consulted and whose permission is required for course registration each semester. The list of advisor assignments is available in the department's main office.

Undergraduate Research Experiences

Students can be employed and perform research in any of the department's research labs, centers, or facilities. Participation in an on or off campus internship, co-op, or other experiential learning opportunity is strongly encouraged. See the aerospace engineering undergraduate studies staff for information on performing research in a department lab and contact the Engineering Co-op and Career Services office for assistance in obtaining off campus positions or experiences.

Honors Program

The Aerospace Engineering Honors Program at the University of Maryland provides a rigorous and comprehensive education for a career in technical leadership and scientific or engineering research. Honors course work encompasses the required curriculum for all University of Maryland Aerospace Engineering students at an advanced level.

At the end of their first academic year, each aerospace student is evaluated and students are invited to join the program based on their University of Maryland cumulative grade point average and progress toward their degree in Aerospace Engineering. Honors sections of ENAE 283, ENAE 311, and ENAE 423 are offered as part of this program, in addition to an honors research project, ENAE 398H, which culminates in a scholarly paper and presentation at a professional conference. Students who complete the honors curriculum graduate with Aerospace Honors at the time of commencement.

Student Societies and Professional Organizations

The Department is home to student chapters of the American Institute of Aeronautics and Astronautics, American Helicopter Society - International, and the Sigma Gamma Tau aerospace engineering honors society. Aerospace Engineering students are also frequent participants in student activities of the Society for Advancement of Materials and Process Engineering.

Scholarships and Financial Assistance

The Department offers academic scholarships and recipients are chosen based on merit. All admitted and current students in the department are automatically considered for these awards. No separate application is required. The Office of Student Financial Aid (OSFA) administers all types of federal, state and institutional financial assistance programs and, in cooperation with other university offices, participates in the awarding of scholarships to deserving students. For information, visit: www.financialaid.umd.edu.

Awards and Recognition

The Department offers the following awards: Academic Achievement Award for the senior with the highest overall academic average at graduation; R.M. Rivello Scholarship Award and the Stephen Guthrie Memorial Award for highest overall academic average through the junior year; Sigma Gamma Tau Outstanding Achievement Award for scholarship and service to the student chapter and the department; American Helicopter Society Outstanding Achievement Award for service to the student chapter and the department; American Institute of Aeronautics and Astronautics Outstanding Achievement Award for scholarship and service to the student chapter and the department; John Anderson Scholarship in Aerospace Engineering for the best paper and poster presentation based on research performed at the University of Maryland.

African American Studies (AASP)

College of Behavioral and Social Sciences
2169 Lefrak Hall, 301-405-1158
www.bsos.umd.edu/aasp/
Chair: S. Harley
Associate Professors: D. Gaskin
Assistant Professors: M. Chateauvert, G. Dinwiddie, O. Johnson, S. Madhavan, J. Richardson
Lecturers: J. England, I. Kargbo, J. Semper

The Major

The African American Studies Department offers a Bachelor of Arts degree with two highly-regarded options: a **Cultural and Social Analysis Concentration** with emphasis on culture and history; or the **Public Policy Concentration** with an emphasis on problem-solving, analytical decision-making, and practical applications of policy analysis and management skills. In addition, students who elect majors in other departments can earn a **Certificate in African American Studies.** In September 2004, we introduced a minor in **Black Women's Studies** which is a collaborative program with the University's Department of Women's Studies.

Courses offered in this department may be found under the acronym **AASP**.

Program Objectives

The field of African American Studies has been an explicitly interdisciplinary one from its earliest formulation at the turn of the twentieth century by W. E. B. Du Bois, Carter G. Woodson, and other scholars. Since the 1960s, it has developed as a coherent field of study with well-developed methods, theories, and pedagogy. We believe that the African American Studies Department at the University of Maryland, College Park has a distinctive intellectual and programmatic focus that continues in this tradition and extends it through situating the study of peoples of African descent at the intersection of cultural and historical studies and the social sciences.

AASD's current program continues the tradition of employing a social scientific approach to the study of the African American experience that involves a concomitant understanding of African Americans' public policy needs. The program reflects the strengths and disciplinary specialties of our own faculty in history, political science, public policy, economics, community development, and research methodology and analysis.

Program Learning Outcomes

A primary goal of the program is to develop strong critical thinking, research and writing skills, through our curriculum, such that AASD majors learn the interdisciplinary methods used in examining the socio-economic, historical, and political experiences and contributions of people of African descent. Students should acquire the following knowledge and skills:

1. Content: ability to identify, describe, and relate central themes, methods, and scholarly development of the field of African American Studies.

2. Critical Thinking: students develop a clear understanding of the richness and complexity of the interdisciplinary scholarship in African American Studies.

3. Students can design and develop the foundations of their own research/thesis projects, specifically, a thesis statement, abstract, and annotated bibliography.

Admission to the Major

Students wishing to major in African American Studies must make an advising appointment for an orientation to the major. Students must complete an application and attend a BSOS academic plan workshop.

Please call the AASD office at 301-405-1158 to make an advising appointment.

Requirements for the Major

Students must earn a grade of C (2.0) or better in each course that is to be counted toward completion of degree requirements. All related or supporting courses in other departments must be approved by an AASP faculty advisor.

Foundation courses required for all majors:		**Credits**
AASP100	Introduction to African American Studies	3
AASP101	Public Policy and the Black Community *(Formerly AASP300)*	3
AASP200	African Civilization	3
AASP202	Black Culture in the United States	3
AASP297	Research Methods in African American Studies *(Formerly AASP299R)*	3

CORE	Liberal Arts and Sciences	43

Cultural and Social Analysis Concentration Requirements:

ELECT 300/400	Upper-Division Electives in African American Studies	18
	Seminars	
	One from:	3-6
AASP397	Senior Thesis	
AASP386/396	Experiential Learning / Independent Study Non-Thesis Option	
AASP395	Fundamentals of Quantitative Research	4
	One from:	3
AASP400	Directed Readings in African American Studies	
AASP402	Classic Readings in African American Studies	
	Total Credits	**86-89**

Public Policy Concentration Requirements:

	Analytic Component	
AASP 301	Applied Policy Analysis and the Black Community *(Formerly AASP428J)*	3
AASP 303	Computer Applications in African American Studies *(Formerly AASP428P)*	3
AASP 305	Theoretical, Methodological, and Policy Research Issues in African American Studies *(Formerly AASP401)*	3
ECON 200	Principles of Microeconomics	4
ECON 201	Principles of Macroeconomics	4
	One additional analytical skills course outside of AASP, with AASP approval	3
	One from:	3
STAT100	Elementary Statistics and Probability	
SOCY 201	Introductory Statistics for Sociology	
	Equivalent Statistics Course *(Sophomore Year)*	
AASP*	Policy Electives in African American Studies*	6
	Final Option	3-6
	One from:	
AASP397	Senior Thesis	
AASP386/396	Experiential Learning / Independent Study Non-Thesis	
	Total Credits	**90-93**

**Upper-division AASP electives in the policy area (AASP numbers 499A-Z) or, with approval, elective courses outside of AASP*

Certificate

The **Certificate in African American Studies** offers undergraduate students an excellent opportunity to develop a specialization in African American issues while pursuing a major in another field. Certificate students learn about the social, economic, political and cultural history of the African American people through a concentration of courses they plan with the AASD Academic Advisor. Courses taken toward the certificate also may be used to satisfy core requirements and electives.

Earning a **Certificate in African American Studies** gives students a competitive advantage in the job market by adding greater focus to their undergraduate experience.

Please see catalog section on "Certificate Programs" for more information and requirements for a **Certificate in African American Studies**.

Advising

The African American Studies Department has mandatory advising for all AASD majors.

Undergraduates in good academic standing may enroll in the African American Studies Department or obtain more information about available options and services by contacting the Undergraduate Academic Advisor, African American Studies Department, 2169 Lefrak Hall, University of Maryland, College Park, MD 20742, 301-405-1158.

Undergraduate Research Experiences

African American Studies majors and certificate students are welcome to apply for undergraduate research assistant internships as part of the **AASP386, Experiential Learning**, course. The student must be in good standing and have at least 56 cumulated credit hours to apply.

Additionally, AASP majors with an overall G.P.A. of 3.0 or above may enroll, with department permission, in the **AASP397, Senior Thesis**, course working with one or more CORE AASD faculty members. The student must have successfully completed **AASP297, Research Methods in African American Studies**.

For more information and details, please call the AASD Academic Advisor at 301-405-1158.

Fieldwork Opportunities

Please see the information on AASD Internship opportunities.

Internships

AASP 386 - Experiential Learning in African American Studies was developed to enable majors and certificate students to formally link their academic studies to experiences as undergraduate teaching assistants and interns, and to do so in a structured learning context.

The internship requires students to work closely with their site supervisors. Students are required to fulfill the job responsibilities and work the number of hours per week that is outlined in their learning proposals. Site supervisors define specific job responsibilities and assignments, monitor their training, and evaluate their performance at the end of the semester by completing an evaluation form and submitting a letter of recommendation to be included in their portfolios.

Interns must participate in a weekly seminar, and complete the assigned projects aimed at bringing together academic research, reflective work, and professional development.

Honors Program

Academically talented undergraduates may enroll in the University Honors Program with a specialization in African American Studies. The Honors Program includes seminars and lectures presented by distinguished University of Maryland, College Park, faculty and guests. A reduced ratio of students to faculty ensures more individualized study.

BA/MPP Program

In this innovative joint program, candidates earn a bachelor's degree in African American Studies and a master's degree in public policy after approximately five years. The BA/MPP is designed to integrate the study of the history, culture, and life of African Americans with technical skills, training, and techniques of contemporary policy analysis. The program also features a summer component that includes a lecture series, research opportunities, and special seminars.

Students who are interested in the BA/MPP program can contact the African American Studies Department at 301-405-1158 for application details.

Options for Study with AASP

For students who major in other departments, the African American Studies Program offers three options for study:

1. Students may obtain a certificate in African American Studies by completing 21 credit hours of course work. For more information on the African American Studies Certificate, see the section on campus-wide programs later in this chapter.

2. Students may designate African American Studies as a double major, completing the major requirements for both AASP and another program.

3. AASP can be a supporting area of student for majors such as Computer Science, Business, or Engineering.

4. Students may obtain a minor in Black Women's Studies by completing 15 credit hours of coursework.

Student Societies and Professional Organizations

AASD majors have the opportunity of being well prepared for leadership positions in campus organizations. AASD majors have historically held notable positions at the University of Maryland in such organizations as the NAACP, Alpha Nu Omega Sorority, Incorporated and The Black Student Union.

The Society of African American Studies is the student-run organization associated with and supported by the department. The Society provides community service in local schools, hosts on-campus programs and events, and annually has supported a local family through its "Adopt-a-Family" program.

The Society sponsors a "Saturday Freedom School" program each year which brings middle school children from a local Prince George's County Public School to campus for seven consecutive Saturdays. The program provides mentoring and academic support that seeks to foster the development of positive Black identities in the student participants, while strengthening their academic performance.

Scholarships and Financial Assistance

John B. and Ida Slaughter Scholarship.

Awards and Recognition

Graduating seniors with an overall G.P.A. of a 3.2 who have earned a 3.5 G.P.A. within the major are recognized with departmental honors.

Graduating seniors with an overall G.P.A. of a 3.5 who have earned a 3.7 G.P.A. within the major are recognized with departmental high honors.

African American Studies Certificate

College of Behavioral and Social Sciences
2169 LeFrak Hall, 301-405-1158
www.bsos.umd.edu/aasp/

The African American Studies Certificate program offers the opportunity to develop a specialization in African American studies while pursuing a major in another field. Certificate students learn about the social, economic, political, and cultural history of African American people through a concentration of courses (21 credit hours). Courses taken toward the certificate also may be used to satisfy CORE requirements and electives. Undergraduates in good standing may apply for the program by contacting the academic advisor of the African American Studies Department in 2169 LeFrak Hall. Students pursuing the certificate must meet the University's general education (CORE) and department requirements. Also see the African American Studies department listing on this site.

Agricultural Science and Technology (AGST)

College of Agriculture and Natural Resources
2102 Plant Sciences Building, 301-405-4355
www.psla.umd.edu
khunt@umd.edu
Chair: W. Kenworthy (Professor and Acting Chair)
Director: D. Glenn (Assoc Prof)

The Major

Agricultural Sciences and Technology is a science based curriculum that allows students to obtain technological skills in a broad area of agricultural studies. Agricultural Sciences and Technology students are required to take courses in Agricultural Economics, Animal Sciences, Environmental Science and Technology, Plant Science and Pest Management. The high number of restricted and non-restricted electives in this curriculum allows students the flexibility to develop an academic program compatible with their personal interests. Students majoring in this curriculum are strongly advised to choose two primary areas of concentration. For example, students may want to develop expertise in both Animal Science and Crop Science.

In addition to offering this curriculum, the Department of Plant Science and Landscape Architecture also offers two other undergraduate degrees: the Bachelor of Science (B.S.) and the Bachelor of Landscape Architecture (BLA). These programs are described elsewhere in the catalog under "Plant Sciences" and "Landscape Architecture."

Courses offered by this department may be found under the following acronyms: PLSC and LARC.

Program Learning Outcomes

- Students will develop technical and knowledge-based skills in the required areas of study.
- Students will use technical and basic learned knowledge to collaborate, solve problems and then articulate conclusions.
- Students shall develop effective communication skills and demonstrate the ability to present ideas with clarity to an appropriate audience.
- Students will connect and build relationships with external groups in the appropriate fields of study.

Requirements for the Major

		Credits
ANSC101	Principles of Animal Science	3
ANSC	ANSC**	3
ANSC220	Livestock Management	3
ANSC340	Health Management of Animal Populations, **OR**	3-4
PLSC420	Principles of Plant Pathology	
AREC250	Elements of Agricultural and Resource Economics	3
AREC	AREC**	3
BSCI105	Principles of Biology I	4
BSCI106	Principles of Biology II, **OR**	
PLSC201	Plant Structure and Function	4
BSCI	BSCI**Insect Pest Type Course	3
CHEM104	Fundamentals of Organic and Biochemistry	4
CHEM131/132	General Chemistry I and Lab	4
ENST200	Fundamentals of Soil Science	4
ENST	ENST**	3
MATH113	MATH 113 or higher	3
PLSC389	Internship	3
PLSC398	Seminar	1
PLSC101	Introductory Crop Science	4
PLSC453	Weed Science	3
PLSC	PLSC**	3
	PLSC, ANSC, or LARC**	3
	Accounting, Education, Computer, or Policy	3
CORE	CORE and General Agricultural Program Requirements	99 100
ELECT	Electives	20-21

***Students may select any course(s) having required hours in the area indicated.*

Advising

The Department has mandatory faculty advising for each of its major and minor programs. Students are required to meet with their faculty advisor at least twice a year. See the Director, Dr. D.S. Glenn (301-405-1331), or the Program Management Specialist in Undergraduate Studies in 2102 Plant Sciences Building (301-405-4355) for additional information.

Internships

Internships with scientists are available at nearby federal and state agencies. Numerous internships also exist and can be readily arranged for students interested in private sector employment.

Student Societies and Professional Organizations

The department sponsors student teams that participate in regional and national contests. These teams prepare in the following areas: turf, weeds and crops, and landscape contracting.

AGST majors are encouraged to join the Agricultural Science Club. This club is open to all UMCP students who have an interest in agriculture and related areas. The AG Science Club is affiliated with the national student organization of the Agronomy, Crop Science and Soil Science Society of America. The function of the club is to bring together students of like interests to participate in College, academic and social activities.

Scholarships and Financial Assistance

Several scholarships and awards are available to PLSC students. Contact the Associate Dean's office at 301-405-2078 for additional information. The Department also maintains a listing of scholarships. Contact Kathy Hunt in 2102 Plant Sciences, 301-405-4355.

The Office of Student Financial Aid (OSFA) administers all types of federal, state and institutional financial assistance programs and, in cooperation with other university offices, participates in the awarding of scholarships to deserving students. For information, visit: www.financialaid.umd.edu.

Agricultural and Resource Economics (AREC)

College of Agriculture and Natural Resources
2200 Symons Hall, 301-405-1291
www.arec.umd.edu
bburdick@arec.umd.edu
Chair: L. Olson
Professors: R. Chambers, B. Gardner, D. Hueth, R. Just, E. Lichtenberg, R. Lopez, K. McConnell, W. Musser, M. Nerlove
Associate Professors: A. Alberini, J. Hanson, J. Horowitz, H. Leathers, H. Leathers, D. Lipton, L. Lynch, D. Parker
Assistant Professors: B. Kirwan, A. Lange, K. Leonard, C. McAusland
Instructors: D. Johnson (Farm Management Specialist)
Affiliate Professors: M. Cropper
Adjunct Professors: J. Chavas, J.Quiggin, J. List
Adjunct Associate Professors: K. McNew
Professors Emeriti: F. Bender, N. Bockstael, E. Brown, J. Cain, J. Curtis, P. Foster, I. Hardie, J. Moore, G. Stevens, I. Strand, D. Tuthill

The Major

Agricultural and Resource Economics majors complete a set of prerequisite courses, a core of classes offered by the Agricultural and Resource Economics Department, and one or more fields comprised of selected courses from outside the department. The core includes courses in economic reasoning, agribusiness management, environmental and resource policy, agricultural policy, economic development, and analytical methods. The program permits students flexibility in choosing fields to fit their career interests. Majors must complete one and are strongly encouraged to complete two fields. The curriculum balances breadth and depth, and lets students develop academic skills in two or more areas. The program provides a good foundation for careers in economics, resource or environmental policy, agribusiness, and international agriculture. Students are also able to minor in Agricultural and Resource Economics.

Double Majors
The department features a double major with Spanish for students interested in careers in multinational agribusiness firms or international agencies. It features a double major with Government and Politics for students interested in law school. Both can be completed within 120 credits. Other double majors are possible in consultation with an advisor.

Requirements for the Major

		Credits
	Prerequisite Courses	
ECON200	Principles of Microeconomics	4
ECON201	Principles of Macroeconomics	4
ECON306	Intermediate Microeconomic Theory	3
ECON321	Economic Statistics, **OR**	3
BMGT230	Business Statistics	
MATH220	Elementary Calculus I, **OR**	3
MATH140	Calculus I	
STAT100	Elementary Statistics and Probability, **OR**	3
MATH111	Introduction to Probability	
	Major Core Courses	
	Seven of these courses must be successfully completed.	
AREC404	Applied Price Analysis	3
AREC405	Economics of Production	3
AREC425	Economics of the Food Sector	3
AREC427	Economics of Commodity Marketing Systems	3
AREC433	Food and Agricultural Policy	3
AREC435	Commodity Futures and Options	3
AREC445	Agricultural Development in the Third World	3
AREC453	Economics of Natural Resource Use	3
AREC455	Economics of Land Use	3
AREC484	Introduction to Econometrics in Agriculture	3
AREC306	Farm Management	3
AREC382	Computer-Based Analysis in Agricultural and Resource Economics	3
AREC400s	any other 3 credit 400 level AREC course may be substituted with permission of advisor	
	Fields	
	All majors must complete one of the following fields. Two are strongly encouraged.	
	Business Management	
BMGT220	Principles of Accounting I	3
BMGT221	Principles of Accounting II	3
BMGT340	Business Finance	3
BMGT350	Marketing Principles	3
BMGT364	Management and Organization	3
BMGT380	Business Law I	3

BMGT300s	*Other 300 level BMGT courses may be substituted, with permission of advisor.* ***(The AREC department cannot authorize students to take BMGT courses that are restricted to business majors.)***	
	Total Credits	18

Agricultural Science

	Six (or more) courses in agricultural science, including:	
ENBE110	Introduction to Biological Resources Engineering	1
ENBE200	Fundamentals of Agricultural Mechanics	3
PLSC100	Introduction to Horticulture, **OR**	4
PLSC101	Introduction to Crop Science	
ENST105	Soil and Environmental Quality	3
ANSC101	Principles of Animal Science	3
AGRI SCI	*Other courses in agricultural science, chosen in consultation with an advisor. Substitutions to the above listed courses may be made with the permission of advisor.*	4
	Total Credits	18

Food Production

	Six courses from the following list:	
PHYS117	Introduction to Physics, **OR**	4
PHYS121	Fundamentals of Physics	
BSCI105	Principles of Biology	4
BSCI223	Introduction to Microbiology	4
NFSC100	Elements of Nutrition	3
NFSC112	Food Science and Technology	3
NFSC430	Food Microbiology	3
NFSC431	Food Quality Control	4
	Other courses related to food science can be substituted with permission of advisor.	
	Total Credits	18

Environmental and Resource Policy

	Six courses from the following list:	
ECON481	Environmental Economics	3
ANTH450	Theory and Practice of Environmental Anthropology	3
HIST405	Environmental History	3
GEOG372	Remote Sensing	3
GEOG373	Geographic Information Systems	3
GVPT273	Introduction to Environmental Politics	3
GVPT306	Global Ecopolitics	3
	Other courses related to environmental policies or sciences can be substituted with permission of advisor.	
	Total Credits	18

International Agriculture

	Six courses from the following list:	
ECON305	Intermediate Macroeconomics	3
ECON315	Economic Development of Underdeveloped Areas	3
ECON340	International Economics	3
GEOG422	Population Geography	3
GVPT200	International Political Relations	3
GVPT350	International Relations in the Third World	3
ENST440	Crops, Soils and Civilization	3
PLSC303	International Crop Production	3
	Other courses related to international economics, business, politics, or agriculture can be substituted with permission of advisor.	
	Total Credits	18

Political Process

GVPT	Any six courses in government and politics, chosen with permission of the advisor.	18

	Total Credits	18

	Advanced Degree Preparation	
	Six (or more) courses from the following list:	
ECON407	Advanced Macroeconomics	3
ECON414	Game Theory	3
ECON415	Strategic Behavior and Incentives	3
ECON422	Quantitative Methods in Economics I	3
ECON423	Quantitative Methods in Economics II	3
ECON425	Mathematical Economics	3
MATH141	Calculus II	4
MATH240	Introduction to Linear Algebra	4
MATH241	Calculus III	4
	Other courses in mathematics, statistics, or econometrics may be substituted with permission of advisor.	
	Total Credits	18

	Student Designed Field	
	This field requires a written proposal listing at least six courses totaling at least 18 credits. The proposal must be submitted to the Undergraduate Committee of the AREC department. Committee approval must be obtained 30 or more credit hours before graduation. A student designed field may be used to study a foreign language as part of the AREC curriculum.	18
	Total Credits	18

Other Requirements for the Major

All courses must be passed with a grade of C or better to count towards prerequisite courses, major core courses, or field requirements. "C or better" means any grade for which the University awards 2 or more quality points in calculating GPA.

Requirements for the Minor

Three minors exist in AREC, Agribusiness Economics, Resource and Agricultural Policy in Economic Development, and Environmental Economics and Policy. Requirements are listed below:

		Credits
	Agribusiness Economics	
AREC250	Elements of Agricultural and Resource Economics	3
AREC404	Applied Price Analysis	3
AREC405	Economics of Production	3
AREC425	Economics of Food Sector	3
AREC435	Commodity Futures and Options	3
	Another AREC course can be substituted for one of the courses listed with permission of the Undergraduate Advisor.	
	Total Credits	**15**
	Resource and Agricultural Policy in Economic Development	
AREC250	Elements of Agricultural and Resource Economics	3
AREC365	World Hunger, Population and Food Supplies	3
AREC433	Food and Agricultural Policy	3
AREC445	Agricultural Development, Population Growth, and the Environment	3
AREC453	Natural Resources and Public Policy	3
	Another AREC course can be substituted for one of the course listed with permission of the Undergraduate Advisor.	
	Total Credits	**15**
	Environmental Economics and Policy	
AREC240	Introduction to Economics and the Environment	3
AREC332	Introduction to Natural Resource Policy	3
AREC382	Computer-based Analysis in Agricultural and Resource Economics	3
AREC445	Agricultural Development, Population Growth, and the Environment	3
AREC455	Economics of Land Use	3

Another AREC course can be substituted for one of the course listed with permission of Undergraduate Advisor.

Total Credits 15

Advising

Because the program is flexible, advising is mandatory. Appointments may be made in Room 2200 Symons Hall, 301-405-1291.

Awards and Recognition

Scholarships honoring Arthur and Pauline Seidenspinner and Ray Murray are available. Contact a faculty advisor for more information, 301-405-1291.

American Studies (AMST)

College of Arts and Humanities
1102 Holzapfel Hall, 301-405-1354
www.amst.umd.edu
Chair: N. Struna
Professors: J. Caughey, R. Kelly
Associate Professors: M. Lounsbury, J. Paoletti, S. Parks, L. Shinagawa, M. Sies
Assistant Professors: C. Hanhardt, J. McCune, P. Williams-Forson
Lecturers: M. Brody, C. LaRoche, J. McCants, G. Metcalf
Affiliate Professors: J. Auerbach, M. Beasley, I. Berlin (Dist Univ Prof), A. Bolles, S. Brower, C. Caramello, E. Chambers, J. Chernela, W. Cohen, B. Dill, J. Donawerth, W. Falk, B. Finkelstein, G. Gerstle, J. Gilbert (Dist Univ Prof), R. Harrison, M. Howland, L. Kauffman, F. Kelly, J. Klumpp, L. Landry, M. Leone, R. Levine, S. Logan, S. Michel, C. Moses, B. Pearson, C. Peterson, G. Ritzer (Dist Univ Prof), D. Rosenfelt, P. Shackel, B. Shneiderman, M. Smith, R. Walters, O. Wang (Assoc Prof), M. Washington, D. Wyatt, R. Zambrana
Affiliate Associate Professors: S. Barkin, R. Bauer, M. Bell, E. Barkley Brown, K. Chuh, C. Eades, J. Freidenberg, D. Freund, M. Geores, S. Giovacchini, I. Gournay, M. Graber, D. Grimsted, S. Harley, S. Kim, K. King, M. Kirschenbaum, M. Lindemann, D. Linebaugh, L. Mamo, K. McAdams, A. Moss, R. Muncy, H. Nathans, Z. Nunes, S. Parry-Giles, T. Parry-Giles, S. Ray, L. Rowland, D. Sicilia, S. Simpson, J. Sullivan, R. Walters (Prof), O. Wang, M. Zilfi
Affiliate Assistant Professors: R. Ater, V. MacDonald, L. Mamo, L. Mar, J. Richardson, M. Rowley
Adjunct Professors: B. Finn
Adjunct Associate Professors: E. Hughes
Professors Emeriti: L. Mintz

The Major

American Studies provides students with a flexible and coherent program of study that focuses on the cultures of everyday life and constructions of identity and difference in Americans' lives, past and present. The B. A. degree prepares students for graduate work and careers in fields such as law, government and social policy, media, non-profit and social justice organizations, cultural institutions, education, and business. There are opportunities for internships, research, and departmental honors. Faculty advisors assist each student to plan a curriculum tailored to his/her interests and goals. Courses offered by the Department of American Studies may be found under the acronym AMST.

Program Learning Outcomes

Students are expected to engage fully with the curriculum, faculty, and other students. Upon completion of the degree programs, students will have demonstrated an understanding of multiple dimensions of diversity and the ability to answer research questions by using appropriate American Studies methodologies. Students who complete an extracurricular, semester-long experience (e.g., internship, service learning, study abroad, independent study) will have demonstrated the ability to analyze culture, cultural processes, and cultural differences. For a complete listing of program outcomes, contact the department.

Requirements for the Major

The American Studies major requires a minimum of 42 credits, including 24 in American Studies, 6 credits of lower level Americanist courses taken outside the department, and 12-24 credits in a focus area or minor taken outside the American Studies department. At least 27 of the credits for the major must be in 300 or 400 level courses, with at least twelve of these credits at the 400 level. A grade of C or better is required in each of the courses making up the major (includes those taken outside the department, such as the Americanist courses and those taken for the minor or focus area).

Foundation Courses (15 credits)
Course requirements in this area are intended to provide a foundation in American Studies and the study of American culture and society in other disciplines. Courses taken for CORE may be double-counted towards the major.

		Credits
AMST201	Introduction of American Studies	3
AMST340	Introduction to History, Theories and Methods in American Studies	3
	One 3-credit course from:	3
AMST203	Popular Culture in America	
AMST204	Film and American Culture Studies	
AMST205	Material Aspects of American Life	
AMST207	Contemporary American Cultures	
AMST212	Diversity in American Culture	
AMST260	American Culture in the Information Age	
FOUNDATION	Foundation courses outside the AMST department	6

Any two lower-level courses selected from an approved list. List is available through the department.

Advanced Requirements (15 credits)
Course requirements in this area are intended to offer students the opportunity to explore selected topics in American Studies in greater depth and to apply what they have learned in their foundation courses. All of these courses must be at the 300 or 400 level. American Studies advanced requirements may be satisfied in one of two ways:

Option A:

- Four 400-level AMST courses, not including AMST 450 (12 credits)
- AMST 450 Seminar in AMST or AMST 388 Honor Thesis (3 credits)

Option B:

- Three 400-level AMST courses not including AMST 450 (9 credits)
- AMST 386-Internship, 398-Independent Study or 388-Honors Thesis Research (3 credits)
- AMST 450 Seminar in AMST or AMST 388 Honors Thesis Research (3 credits)

Focus Area Requirements (12-24 Credits)
The focus area requirements reinforce the essential interdisciplinary nature of our field, offering students a range of options to connect their American Studies coursework with a related discipline or field. All focus area courses must be taken outside the American Studies Department.

Minor or Certificate option (15-24 credits, at least 9 at the 300 or 400 level)
Successful completion of a minor or certificate from an approved list (available through the department). University approved minors range from 15 to 24 credits; certificate programs require 21-24 credits. The department or program administering the minor determines specific requirements, and in some cases, student eligibility.

Focus Area Option (12 credits, all at the 300 or 400 level)
Successful completion (C or better) of four upper level courses outside the department that enable the student to construct a coherent focus area complementary to American Studies. A focus area may be in a single department or selected from two or more departments (examples available through the department). Students should not pursue a focus in a department or program that offers a suitable minor or certificate. An American Studies advisor must approve course selection within the focus area in advance, as part of mandatory advising each semester.

Advising

Departmental faculty advising is mandatory for all majors.

Undergraduate Research Experiences

Students will complete a research project for the senior seminar, AMST 450, and they are encouraged to gain additional research experience with individual faculty members and advanced graduate students and in one of the Department's Working Groups. See the Department webpage for more information about research: www.amst.umd.edu.

Internships

Juniors and seniors may take up to 6 hours in internships that extend an individual's curricular program. Students must consult with a faculty advisor about a prospective internship and complete and sign an internship contract. All internships will have academic components.

Honors Program

The American Studies Honors Program offers outstanding students an opportunity to add distinction to their academic records by undertaking an independent research project in an area of particular interest.The program is intended to allow students preparing for graduate study or a professional career to apply and further develop their research, analytic, and writing skills in an independent project of their own design, in consultation with a faculty mentor. Students are encouraged to make use of the rich resources of the Washington-Baltimore area, including major research institutions such as the Smithsonian Institutions, the Library of Congress, and the National Archives.

Students fulfill the honors program requirements through a combination of honors-designated coursework (6 credit hours) and an honors thesis (6 credit hours). **These**
These courses and credits fall*within* **both the American Studies major requirements and the University's 120-credit undergraduate degree requirement. Students who undertake American Studies Honors are excused from the senior seminar, AMST 450.**

Eligibility: Students must have at least a 3.0 GPA at the time of entry into the program, and must maintain a 3.0 GPA to remain in good standing. To graduate with Honors in American Studies, students must have a 3.0 cumulative GPA and at least a 3.2 GPA in their major coursework.

Application: Students who wish to pursue Honors work should submit a letter of intent to the Director of Undergraduate Studies. The letter should identify the core faculty member who has agreed to approve course work and supervise the research and writing of the honors thesis.

Requirements: The Honors Program gives students a substantial amount of flexibility in fulfilling the two basic requirements: 6 credit hours of honors-designated coursework; and 6 credit hours of AMST 388, Honors Thesis and Research.

To fulfill the coursework requirements (6 credit hours), students may:

- Take an upper level Honors section course in a department or departments consonant with the student's major focus areas.
- Take an upper level University Honors course.
- Negotiate an Honors Option Contract with the instructor of an upper division course in American Studies or in a department or departments consonant with the student's major focus areas.
- Take a graduate course in a department or departments consonant with the student's major focus areas.

All coursework not taken in an Honors section, in a university Honors course, or in a graduate course should have an Honors Option Contract completed, in order to ensure that the student's transcript reflects that the work carries Honors credit.

To fulfill the thesis requirements, students will:

- Register for 6 credit hours of AMST 388, Honors Thesis and Research. Customarily this is spread across the student's senior year, with 3 credit hours taken each term.

- Present the thesis to a committee composed of the faculty mentor and another department faculty member. At the satisfactory conclusion of the thesis presentation, the committee will notify the Director of Undergraduate Studies that the thesis has been read, evaluated and approved. The Director of Undergraduate Studies will then notify the University Honors Program Director of the successful completion of the individual Honors degree program.

Scholarships and Financial Assistance

The Department awards the David Ellis Scholarship annually. For information and requirements contact the Department office.

Awards and Recognition

The Department recognizes outstanding scholarly accomplishments by undergraduates at graduation. Monetary prizes are awarded for both the highest undergraduate GPA and the best Honors thesis.

ANIMAL SCIENCES (ANSC)

College of Agriculture and Natural Resources
1415A Animal Sciences Center, 301-405-1373
www.ansc.umd.edu
ansc@umd.edu
Chair: T. Porter
Professors: R. Erdman, R. Kohn, I. Mather, M. Ottinger, R. Peters, T. Porter, M. Varner, I. Vijay
Associate Professors: C. Angel, J. Doerr, I. Estevez, T. Hartsock, C. Keefer, W. Stricklin, L. Woods, N. Zimmermann
Assistant Professors: B. Bequette, A. Burk, I. Hamza, F. Siewerdt, J. Song, L. Taneyhill, M. Updike
Lecturers: C. Hakenkamp
Affiliate Professors: S. Schoenian
Professors Emeriti: L. Douglass (Prof Emeritus), J. Heath, J. Majeskie, J. Soares, J. Vandersall, D. Westhoff, W. Williams

The Major

The Department of Animal and Avian Sciences provides a challenging program for academically talented students interested in the application of biology and technology to the care, management and study of domestic and aquatic animals. In addition to emphasizing the traditional farm species of dairy and beef cattle, sheep, swine and poultry, our program includes options in equine studies, laboratory animal management, and sciences which prepare students for veterinary or graduate school. Animal sciences majors explore a wide range of subjects -- from fundamental biology to animal nutrition, physiology and genetics -- while integrating science and economics into animal management.

Our department offers B.S., M.S. and Ph.D. degrees. One-third of our animal sciences seniors enter veterinary school, while others go on to graduate school. Our graduates also pursue a variety of careers such as research technicians, sales or marketing representatives, or animal producers.

Academic Programs and Departmental Facilities

Our up-to-date facilities in the Animal Sciences Center, which opened in 1991, include new classrooms, an inviting lecture hall and a large social area for students. The newly constructed teaching labs, animal rooms and a surgery suite are located adjacent to the teaching farm where horses, sheep, beef and dairy cattle are maintained.

Requirements for the Major

Animal Sciences prepares students for veterinary school, graduate school and careers in research, sales and marketing, biotechnology, aquaculture, and animal production. The curricula apply the principles of biology and technology to the care, management, and study of dairy and beef cattle, horses, fish, sheep, swine, and poultry. Students complete the Animal Sciences core courses and choose a specialization area: Animal Biotechnology, Animal Care and Management, Equine Studies, Laboratory Animal Management, and Sciences/Professional Option to prepare for admission to graduate, veterinary, pharmacy, nursing or medical school. **Pleas**
Please note: there is a $50 per course fee for Animal Science Laboratory courses.

	ANIMAL SCIENCES CORE *All undergraduates majoring in Animal Sciences must complete the following course requirements:*	**Credits**
ANSC101	Principles of Animal Sciences	3
ANSC103	Principles of Animal Sciences Laboratory	1
ANSC211	Animal Anatomy	3
ANSC212	Animal Physiology	3
ANSC214	Animal Physiology Laboratory	1
ANSC314	Comparative Animal Nutrition	3
ANSC327	Molecular and Quantitative Animal Genetics	3
BSCI105	Principles of Biology I	4
BSCI223	General Microbiology	4
CHEM131/132	General Chemistry I/Laboratory	4
	One from:	
MATH220	Elementary Calculus I	3
MATH140	Calculus I	4
	One from:	
AREC250	Elements of Agricultural and Resource Economics	3
ECON200	Principles of Micro-Economics	4

ADDITIONAL COURSE WORK
All students must complete 30-40 credits in one of the following six options.

1. ANIMAL CARE AND MANAGEMENT (0104A)
Required Courses

ANSC315	Applied Animal Nutrition	3
ANSC446	Physiology of Mammalian Reproduction	3
ANSC447	Physiology of Mammalian Reproduction Laboratory	1
AREC306	Farm Management	3
BSCI106	Principles of Biology II	4
CHEM104	Fundamentals of Organic and Biochemistry	4

Plus take 6 credits from the following courses:

ANSC420	Critical Thinking in Animal Sciences	3
ANSC435	Experimental Embryology	
ANSC437	Animal Biotechnology	
ANSC443	Physiology and Biochemistry of Lactation	3
ANSC444	Domestic Animal Endocrinology	3
ANSC450	Animal Breeding Plans	
ANSC452	Avian Physiology	3
ANSC453	Animal Welfare	3
ANSC455	Applied Animal Behavior	3
ANSC497	Animal Biotechnology Recombinant DNA Laboratory	3

Plus take 9 credits from the following courses:

ANSC340	Health Management of Animal Populations	3
ANSC220	Livestock Management	3
ANSC232	Horse Management	3
ANSC240	Dairy Cattle Management	2
ANSC255	Introduction to Aquaculture	3
ANSC262	Commercial Poultry Management	3
ANSC305	Companion Animal Care	3
ANSC413	Laboratory Animal Management	3

2. EQUINE STUDIES (0104C) Required Courses

ANSC220	Livestock Management	3
ANSC232	Horse Management	3
ANSC330	Equine Science	3
ANSC315	Applied Animal Nutrition	3
ANSC446	Physiology of Mammalian Reproduction	3
ANSC447	Physiology of Mammalian Reproduction Laboratory	1
AREC306	Farm Management	3
BSCI106	Principles of Biology II	4
CHEM104	Fundamentals of Organic and Biochemistry	4

Plus take 9 credits from the following courses:

ANSC340	Health Management of Animal Populations	3
ANSC420	Critical Thinking in Animal Sciences	3
ANSC435	Experimental Embryology	3
ANSC437	Animal Biotechnology	2
ANSC443	Physiology and Biochemistry of Lactation	3
ANSC444	Domestic Animal Endocrinology	3
ANSC450	Animal Breeding Plans	
ANSC452	Avian Physiology	3
ANSC453	Animal Welfare	3
ANSC455	Applied Animal Behavior	3
ANSC497	Animal Biotechnology Recombinant DNA Laboratory	3

3. LABORATORY ANIMAL MANAGEMENT (0104D)
Required Courses

ANSC340	Health Management of Animal Populations	3
ANSC413	Lab Animal Management	3
ANSC437	Animal Biotechnology	2
ANSC446	Physiology of Mammalian Reproduction	3
ANSC447	Physiology of Mammalian Reproduction Laboratory	1
ANSC453	Animal Welfare	3
ANSC455	Applied Animal Behavior	3
BSCI106	Principles of Biology II	4
CHEM104	Fundamentals of Organic and Biochemistry	4

	Plus take 6 credits from the following courses:	
ANSC420	Critical Thinking in Animal Sciences	3
ANSC435	Experimental Embryology	3
ANSC443	Physiology and Biochemistry of Lactation	3
ANSC444	Domestic Animal Endocrinology	3
ANSC450	Animal Breeding Plans	
ANSC452	Avian Physiology	3
ANSC497	Animal Biotechnology Recombinant DNA Laboratory	3
	Plus take 3 credits from the following courses:	
ANSC220	Livestock Management	3
ANSC255	Introduction to Aquaculture	3
ANSC262	Commercial Poultry Management	3

4. & 5. SCIENCES & COMBINED AG AND VET SCI (0104E and 1299D) Required Courses

ANSC315	Applied Animal Nutrition	3
BSCI106	Principles of Biology II	4
BCHM463	Biochemistry of Physiology or	3
BSCI230	Cell Biology and Physiology	4
CHEM231/232	Organic Chemistry I/Laboratory	4
CHEM241/242	Organic Chemistry II/Laboratory	4
CHEM271	General Chemistry and Energetics	2
PHYS121	Fundamentals of Physics I	4
PHYS122	Fundamentals of Physics II	4
	Plus take 9 credits from the following courses:	
ANSC340	Health Management of Animal Populations	3
ANSC420	Critical Thinking in Animal Sciences	3
ANSC435	Experimental Embryology	3
ANSC437	Animal Biotechnology	2
ANSC443	Physiology and Biochemistry of Lactation	3
ANSC444	Domestic Animal Endocrinology	3
ANSC446	Physiology of Mammalian Reproduction	3
ANSC447	Physiology of Mammalian Reproduction Laboratory	1
ANSC450	Animal Breeding Plans	
ANSC452	Avian Physiology	3
ANSC453	Animal Welfare	3
ANSC455	Applied Animal Behavior	3
ANSC497	Animal Biotechnology Recombinant DNA Laboratory	3
	Plus take 3 credits from the following courses:	
ANSC220	Livestock Management	3
ANSC232	Horse Management	3
ANSC240	Dairy Cattle Management	2
ANSC255	Introduction to Aquaculture	3
ANSC262	Commercial Poultry Management	3
ANSC413	Laboratory Animal Management	3

For additional information concerning veterinary school applications, please contact the K. Feldman, VMRCVM, 8705 Greenmead Dr., University of Maryland, College Park, MD 20742-3711, 301-314-6820, kfeldman@umd.edu.

6. ANIMAL BIOTECHNOLOGY (0104F) Required Courses

ANSC437	Animal Biotechnology	2
ANSC497	Animal Biotechnology Recombinant DNA Laboratory	3
BCHM463	Biochemistry of Physiology	3
BSCI230	Cell Biology and Physiology	4
CHEM231/232	Organic Chemistry I/Laboratory	4
CHEM241/242	Organic Chemistry II/Laboratory	4
CHEM271	General Chemistry and Energetics	2
	Plus take 3 credits from the following courses:	
ANSC220	Livestock Management	3
ANSC255	Introduction to Aquaculture	3
ANSC262	Commercial Poultry Management	3
ANSC413	Laboratory Animal Management	3

	Plus take 9 credits from the following courses:	
ANSC340	Health Management of Animal Populations	3
ANSC420	Critical Thinking in Animal Sciences	3
ANSC443	Physiology and Biochemistry of Lactation	3
ANSC446	Physiology of Mammalian Reproduction	3
ANSC447	Physiology of Mammalian Reproduction Laboratory	1
ANSC450	Animal Breeding Plans	
ANSC452	Avian Physiology	3
ANSC453	Animal Welfare	3
ANSC455	Applied Animal Behavior	3

	Plus take 3 credits from the following courses:	
ANSC435	Experimental Embryology	3
BSCI380	Comparative Bioinformatics	4
BSCI413	Recombinant DNA	3

Other Requirements for the Major

Animal sciences majors select one of six options as an area of specialization:

Science/Professional - Prepares students for admission to veterinary or medical schools and/or graduate school. Graduate school study can open the door to an exciting research career in specialty areas of animal or biological sciences such as genetics, nutrition, physiology or cell biology. The curriculum emphasizes advanced courses in the biological and physical sciences and includes all the pre-veterinary and pre-medicine requirements.

Combined Ag & Vet Sci - A combined degree program is available to students who gain admission to veterinary school prior to completing their bachelor's degree. College of Agriculture and Natural Resources students who have completed at least ninety hours, including all college and university requirements, are awarded a bachelor of science degree upon successful completion of at least thirty semester hours in an accredited college of veterinary medicine. Early planning with your advisor is encouraged if you choose this option.

Equine Studies - Offers hands-on learning opportunities in the area of equine science and management. The Department of Animal and Avian Sciences at the University of Maryland offers undergraduate students the opportunity to emphasize on horses while pursuing a Bachelor of Science degree in Animal Science. Students may take equine courses that explore a wide range of topics including anatomy and physiology, nutrition, reproduction, exercise, law, insurance, facilities, health and disease, pasture management, and more. Our courses are designed to provide valuable hands-on learning experiences to better prepare students to be future leaders in the horse industry as well as other industries. In addition, ANSC students may take one or more equine courses within the Institute of Applied Agriculture.

Animal Biotechnology - The Animal Biotechnology option is a relatively new addition to our program. It combines the basic required animal science courses with a focus on biology and technology. This option has a heavy emphasis on science courses, to prepare students for a professional career. Some of the career options with this track include: an industry career in animal biotechnology; a graduate degree in biotechnology (either MS and/or PHD); or a professional degree and career (Veterinary or Human Medicine, Nursing, Pharmacy.)

Animal Care & Management - Is designed for students whose career plans include animal management, production and the marketing of animal products. The curriculum provides basic courses in genetics, nutrition, physiology and reproduction while allowing students to focus on the management of one particular livestock species. You will be encouraged to supplement academic work with practical experience by completing an internship. Dairy science students, for example, intern at local farms where they participate in decisions about breeding, feeding, health practices, milk production and other aspects of herd management. This option will prepare you for ownership or management positions with dairy, livestock or poultry production enterprises; positions with marketing and processing organizations; breed associations; and positions in agribusiness fields such as sales of feed, pharmaceutical products and agricultural equipment. Graduates also work with state and federal agencies.

Laboratory Animal Management - Prepares students for careers in the operation and management of laboratory animal facilities connected with the biotechnology industry. Course work in nutrition, reproduction and environmental management is combined with practical learning to provide future managers with tools they will need. As a graduate, you may pursue careers with state or federal agencies; with private industry in the management and operation of laboratory animal production; and with instructional or investigational facilities.

Advising

Animal sciences majors are assigned a faculty advisor to assist with program and course selection, as well as to help students take advantage of the many non-classroom opportunities in the Washington, D.C. area. Faculty members have specialties in all areas of animal sciences, as well as veterinary medicine, and bring practical applications to the classroom, creating a rich learning experience for students.

Face to face advising is mandatory. Each student will be assigned to a faculty advisor to assist in planning his or her academic program. For information or appointment: 1415A Animal Sciences Center, 301-405-1373.

Undergraduate Research Experiences

Because it is part of a land grant university, the Department of Animal and Avian Sciences also has responsibility for research and technology transfer to the animal industry throughout Maryland. During undergraduate study, students are encouraged to conduct independent research in faculty laboratories on campus or at the nearby U. S. Department of Agriculture Beltsville Agricultural Research Center.

Internships

Students are encouraged to gain practical animal management experience by pursuing internships. Students have completed internships in locations ranging from the area around the University, to cattle farms in the Midwest, agribusiness firms in California, and a zoo in Frankfurt, Germany. Many animal sciences students use the summer to gain additional applied experience in animal sciences, veterinary medicine or agribusiness.

Honors Program

Students admitted to the AGNR Honors Program are eligible to take 3 - 6 credits of Honors Thesis Research within the ANSC Department (ANSC388). Undergraduate Undergraduate honors thesis research is conducted under the direction of an AGNR faculty member in partial fulfillment of the requirements of the College of AGNR Honors Program. The thesis will be defended before a faculty committee.

Student Societies and Professional Organizations

The clubs and organizations affiliated with the Animal Science department allow ample opportunities for leadership, development, hands-on animal experience, and fun!
Alpha Gamma Rho
Alpha Gamma Rho is a social/professional fraternity that has been a training ground for leaders in the agriculture and life sciences community since it was

established at College Park in 1928. AGR has a rich tradition of alumni contacts with over 50,000 brothers nationwide, including over 700 brothers in the Washington area alone. AGR men are leaders in various clubs within the college and the fraternity is an active member of both the Inter-fraternity Council (IFC) and the Ag Student Council. Alpha Gamma Rho stresses scholarship, leadership and fellowship, and it is well respected among Greek organizations because of their no pledging, substance free, scholars environment. In addition, the chapter house on Princeton Avenue offers the opportunity to live with brothers who are taking the same classes and share many of the same interests which makes it much easier to find a niche on such a large campus.

Alpha Zeta
Alpha Zeta is an agricultural professional honor society whose membership is selected from undergraduate and graduate students excelling in scholarship, leadership, character, and service. Organizational events include coordinating the Partners in Education program with the USDA Agriculture Research Service, Beltsville Area, fund raising activities, community service projects, awards and recognition programs, and an annual student/faculty/alumni banquet. A popular annual event is coordinating a Field Day for young children at the nearby National Agricultural Research Visitor Center at Beltsville.

Animal Husbandry Club
The Animal Husbandry Club at the University of Maryland, College Park, provides opportunities for students to gain animal handling experience and build interpersonal relationship skills, while given the encouragement to excel! Activities and experiences specifically designed for students of diversified interests in animal agriculture are provided, including experiences with many different domestic species. Membership is open to all undergraduate students interested in getting hands-on experience working with dairy, beef, sheep or swine, and learning more about general animal sciences. Activities include the Ag Day Dairy and Livestock Shows, Harvest Stomp/Fall Festival, fitting of animals for the annual Wye Angus Sale, and other activities working with dairy animals. One can gain further leadership skills by holding an office. Each Spring, elections are held for President, Vice-President, Secretary, Treasurer, and Historian.

Collegiate 4-H
Many colleges and universities have Collegiate 4-H clubs. Collegiate 4-H is an organization that provides its members with a sense of identity on campus, enriches their lives through group projects and recreation, and develops confidence and leadership skills. Clubs provide service and support to their local and state 4-H programs, such as serving as judges and conducting training workshops. They are also a service and social group for campus students. Collegiate 4-H is open to all college students who wish to support youth and the 4-H program. It is not necessary to have prior 4-H experience, only to have an interest in the 4-H ideals and in serving your community. www.collegiate4h.org/

Sigma Alpha
Sigma Alpha is a national professional agricultural sorority. The objective of the sorority is to promote its members in all facets of agriculture and to strengthen the friendships among them. Members strive for achievement in scholarship, leadership, service, and to further the development of women pursuing careers in agriculture. Sigma Alpha works to promote agriculture, and women's role, on our campus, in our community and throughout the state. Activities include: attending regional and national conferences /conventions; participating in college events (Fall Bash, ANSC orientation, Cook-Offs); service activities including teaching agriculture to local elementary students and judging contests for the Maryland FFA; professional Guest speakers, and participating in Maryland Day/Ag Day. Membership rush is held on a semester basis. To be eligible, potential members must have: 2.25 Cumulative GPA, Agriculture major or sincere interest in agriculture, be a member of one other group, enrolled in 18 credits, or working 10 hours a week. Visit the web site: www.studentorg.umd.edu/sigma

University of Maryland Equestrian Club
The University of Maryland Equestrian Club (UMEC) provides on-campus horseback riding lessons and equine learning opportunities for campus students and faculty at beginner through advanced levels. The ANSC department provides the barn, equipment, riding arenas and horses while the students provide care for the horses. There is a riding fee of $200 per semester for one riding lesson a week for the entire semester. Large deductions are easily earned for help with feeding, cleaning stalls or teaching. Club members not riding are strongly encouraged to participate in other club activities, such as educational and fun seminars, field trips and monthly meetings. In the past, UMEC members have attended the Columbia Grand Prix and the Washington International Horse Show and taken field trips to the DuPont Veterinary Medical Center in Leesburg, Va. and Days End Horse Rescue Farm in Maryland. Members have also participated in clinics on tack fitting and identifying lameness in horses. Club members, under the leadership of the Executive Board and Directors, make most UMEC club decisions. We offer a great opportunity to all students and we're always open to suggestions. We also try to have something for everyone including basic English equitation, Western equitation, dressage, bareback and trail riding, horse and farm management, veterinary care, teaching skills and much more. The UMEC is located at the campus horse barn, and our office is in the Shack, right next to the paddocks. There is very limited space in the riding lessons, so e-mail us right away to reserve yourself a spot in the most educational equine club provided by the University of Maryland. Visit the web site: www.studentorg.umd.edu/umec/

University of Maryland Equestrian Team
The Equestrian Team is a competitive club, meaning they travel to different schools in the zone and compete in IHSA shows. Students, faculty, staff, and alumni association members of all levels are invited. The team offers English, Western, and jumping, so team members can pick what type of riding to specialize in or compete in all three! The team does not hold tryouts so anyone can join the team. UMET is located about 25 minutes off campus at Clay Hill Stables in Springdale, Maryland. The cost per semester for team membership is $550. This fee covers two one hour group lessons a week taught by trainer Trisha Prettyman, unlimited practice rides (hacks), show fees, show practices, and a ton of fun!

Veterinary Science Club
The primary objectives of the Veterinary Science Club are to: promote a deeper understanding of the numerous opportunities in veterinary medicine, exchange information on veterinary and animal experiences, and keep students updated on the latest veterinary school information.

What does the Veterinary Science Club do? A variety of guest speakers are invited to club meetings to talk about their specialties or field of interest. A sample of topic include wildlife rehabilitation, laboratory animal medicine, exotic pet care and veterinary ethics.

Each year, faculty from the Virginia-Maryland Regional College of Veterinary Medicine speak to club members about veterinary medical school. Mock interviews are held in January to prepare our club members for the admissions process.

Club sponsored trips offer our members the opportunity to tour various veterinary medical facilities, talk to veterinary students and faculty, and to visit local zoos and animal care facilities.

Annually, the club participates in the APVMA National Symposium which is held at different veterinary schools each year. This is an excellent opportunity to visit a vet school, plus hear over 30 speakers on numerous topics and participate in a variety of wet and dry lab.

There are also opportunities to volunteer with the Prince George's County Animal Shelter in partnership with PetSmart, to help find homes for abandoned animals. For more information visit the web site: www.careercenter.umd.edu/VetSciClub

Scholarships and Financial Assistance

American Society of Animal Sciences Scholastic Recognition and Department of Animal Sciences Scholastic Achievement Awards are presented each year at the College of Agriculture and Natural Resources Student Awards Convocation. The ANSC program administers several scholarships, including: C.W. England, Dairy Technology Society, the Kinghorne Fund Fellowship, the C.S. Shaffner Award, the Lillian Hildebrandt Rummel Scholarship, and the Owen P. Thomas Development Scholarship. For eligibility criteria, visit the ANSC Office, 1415A Animal Sciences Center.

The Office of Student Financial Aid (OSFA) administers all types of federal, state and institutional financial assistance programs and, in cooperation with other university offices, participates in the awarding of scholarships to deserving students. For information, visit: www.financialaid.umd.edu.

Anthropology (ANTH)

College of Behavioral and Social Sciences
1111 Woods Hall, 301-405-1423
www.bsos.umd.edu/anth
Chair: P. Shackel
Professors: J. Chernela (also LASC), F. Jackson, M. Leone, T. Whitehead
Associate Professors: J. Freidenberg, M. Paolisso
Assistant Professors: S. Brighton, W. Stuart
Lecturers: M. Butler, J. Finch, D. Gadsby, T. Leslie, M. London, M. Plyler
Affiliate Professors: A. Bolles (WMST), J. Carlson, J. Caughey (AMST), J. Grayzel (GVPT), J. Hanna, R. Harrison (CMLT, LASC), S. Kim (WMST), D. Linebaugh (HISP), L. Frederik Meer (THET), C. Robertson (MUSC)
Adjunct Professors: S. Abbott-Jamieson (NOAA), T. Cederstrom, C. Crain (LTG Associates), S. Fiske (NOAA), A. Froment, A. Garland, S. Huertin-Roberts, E. Krebs, J. Kunen (USAID), B. Little (National Park Service), F. McManamon (National Park Service), M. Mieri (Smithsonian), S. Potter (National Park Service), C. Puentes-Markides, D. Russell (USAID), J. Schneider, R. Sobel (Smithsonian), N. Tashima (LTG Associates), R. Winthrop (BLM)
Adjunct Assistant Professors: G. Thakur
Professors Emeriti: M. Agar, S. Bushrui, N. Gonzalez (Emerita)

The Major

Anthropology, the study of culture, seeks to understand humans as a whole - as social beings who are capable of symbolic communication through which they produce a rich cultural record. Anthropologists try to explain differences among cultures - differences in physical characteristics as well as in customary behavior. Anthropologists study how culture has changed through time as the human genus has spread over the earth. Anthropology is the science of the biological evolution of human species, and the disciplined scholarship of the cultural development of human beings' knowledge and customary behavior.

Anthropology at the University of Maryland offers rigorous training for many career options. A strong background in anthropology is a definite asset in preparing for a variety of academic and professional fields, ranging from the law and business, to comparative literature, philosophy and the fine arts. Whether one goes on to a Master's or a Ph.D., the anthropology B.A. prepares one for a wide range of non-academic employment, such as city and public health planning, development consulting, program evaluation, and public archaeology.

Program Learning Outcomes

Having completed the degree program, students should have acquired the following knowledge and skills:

1. Students shall have an integrated knowledge, awareness and understanding of a culturally and biologically diverse world.
2. Students shall demonstrate an understanding of culture and society.
3. Students shall demonstrate the ability to understand complex research problems, and articulate appropriate methods and theory.

Academic Programs and Departmental Facilities

The Anthropology department offers beginning and advanced course work in the three principal subdivisions of the discipline: cultural anthropology, archaeology, and biological anthropology. Within each area, the department offers some degree of specialization and provides a variety of opportunities for research and independent study. Laboratory courses are offered in biological anthropology and archaeology. Field schools are offered in archaeology. The interrelationship of all branches of anthropology is emphasized.

The Anthropology department has a total of five laboratories, located in Woods Hall, which are divided into teaching labs and research labs. The department's three archaeology labs, containing materials collected from field schools and research projects of the past several years, serve both teaching and research purposes. The other two laboratories are a teaching laboratory in biological anthropology and the Laboratory for Applied Ethnography and Community Action Research.Cultural Systems Analysis Group (CuSAG), a research and program development arm of the department is located in Woods Hall. The Center for Heritage Research Studies, located in the Department of Anthropology, focuses on research devoted to understanding the cultural characteristics of heritage and its uses.

The undergraduate curriculum is tied to the department's Master in Applied Anthropology (M.A.A.) program; accordingly, preparation for non-academic employment upon graduation is a primary educational goal of the department's undergraduate course work and internship and research components. The department has also recently implemented a Doctor of Philosophy (PhD) program. Students at the graduate level are asked to focus in one of three areas of faculty expertise: Health, Heritage, and Environment.

Requirements for the Major

Students seeking an undergraduate degree are required to complete at least 31 credits of anthropology course work in addition to the supporting coursework sequence. Every course being used to satisfy anthropology major requirements must be completed with a grade of 2.0 or higher.

Required Courses

	I. Foundation Courses	**Credits**
ANTH220	Introduction to Biological Anthropology	4
ANTH240	Introduction to Archaeology	3
ANTH260	Introduction to Socio-cultural Anthropology and Linguistics	3
	II. Method and Theory courses (2 courses)	6
ANTH320*	Method and Theory in Biological Anthropology	
ANTH340*	Method and Theory in Archaeology	
ANTH360*	Method and Theory in Sociocultural Anthropology	
	**Two of the upper level method and theory courses (ANTH320, 340, 360) are required. Students must complete the method and theory course associated with their chosen focus area - sociocultural anthropology, archaeology, biological anthropology. Students may not take a method and theory course unless they have completed the associated foundation course. If a student completes all three of the method and theory courses, one course can be used as an anthropology elective.*	

	III. Anthropology Electives *Minimum of 12 credits. 6 of the 12 credits must be taken at the 300-400 level.*	
ANTHxx	Anthropology electives	6
ANTH300/400	Upper level Anthropology courses	6
	IV. Applied Field Methods *Minimum of 3 credits selected from the following. Other courses can be used with approval of UG Director. Courses used to fulfill the Applied Field Methods requirement may not be used to fulfill any other anthropology requirement.*	3 or more
ANTH386	Experiential Learning Internship (3-6 credits)	
ANTH496	Field Methods in Archaeology (6 credits)	
ANTH498	Advanced Field Training in Ethnography (1-6)	
ANTH468B	Applied Urban Ethnography (3 credits)	
ANTH493	Anthropological Fieldwork and Experience in Argentina (3 credits)	
ANTH498C	Advanced Field Training in Ethnography: Brazil (6 credits)	
ANTH498N	Ethnology of the Immigrant Life (4 credits)	
ANTH498W	Jamaica: Connections, Celebration and Identity (6 credits)	
ANTH498Z	Jamaica:Adolescent Sexual and Reproductive Health (6 credits)	
ANTH499	Fieldwork in Biological Anthropology (3-8 credits)	
	V. Skills Requirement *Quantitative course (chosen from list below and required for all students entering the major Fall 2008 and after)*	3 or more
SKILLSxx	BIOM301, MATH111, STAT100, ECON201, ECON321, EDMS451, GEOG306, MATH112 or higher *(excluding MATH113)*, PSYC200, SOCY200	
ELECT	**VI. Supporting Course Work:** *Minimum of 18 credits of supporting electives; at least 10 credit hours must be outside of the department (with your academic advisor's approval). 8 hours may be anthropology course work, but then cannot 'double count' as Anthropology electives.*	18

Advising

The primary advisor for students in the Anthropology major is the Undergraduate Advisor. The advisor is available to students during appointments, walk-in hours, and by phone and email. The advisor is responsible for helping students plan their successful completion of the Anthropology major. Students will work with the advisor for an orientation to the department, status on degree progress, administrative approval for special course enrollment, academic audits, and graduation clearance. In addition, students should consider the Undergraduate Advisor a resource for general academic and career advice during their time at Maryland.

The office of Undergraduate Advisor is supervised and supported by the Director of Undergraduate Studies (a faculty member) in the Department of Anthropology. In addition, all faculty members in the department serve as faculty advisors to students. Students are expected to select and request a faculty member who works within their area of focus to be their faculty advisor (i.e. Archaeology, Biological Anthropology or Cultural Anthropology). For more information, or to contact the Director of Undergraduate Studies or Undergraduate Advisor, please call 301-405-1423 or go to www.bsos.umd.edu/anth.

Undergraduate Research Experiences

There are several undergraduate research experiences available for students:

1. Archaeology laboratories
2. Biological anthropology lab
3. Chesapeake heritage program
4. Immigrant Life Course
5. Cultural Systems Analysis Group
6. Center for Heritage Resource Studies

For more information, please see our website: www.bsos.umd.edu/anth

Fieldwork Opportunities

The Department of Anthropology encourages students to explore its field school and study abroad opportunities:

1. Summer archaeology field school
2. Ethnographic field school in Jamaica (study abroad program)
3. Ethnographic field school in the Brazilian Amazon (study abroad program)
4. Ethnographic field school in Argentina (study abroad program)
5. Winter term field study in Italy (study abroad program)

For more information, see our website: www.bsos.umd.edu/anth.

Internships

All undergraduate students are encouraged to do an internship. There are many non-profit and government agencies in the Baltimore-Washington area that are willing to support Anthropology interns. For more information, please contact the Director of Undergraduate Studies or the Undergraduate Advisor.

Co-op Programs

The Department has a cooperative agreement with the National Park Service. When available, students have opportunities to work on various archeology and museum projects in the National Capital Region. For more information, please contact the Director of Undergraduate Studies or the Undergraduate Advisor.

Honors Program

The Anthropology department also offers an Honors Program that provides the student an opportunity to pursue in-depth study of his or her interests. Acceptance is contingent upon a 3.5 GPA in anthropology courses and a 3.0 overall average. The Honors Citation is awarded upon completion and review of a thesis (usually based upon at least one term of research under the direction of an Anthropology faculty member) to be done within the field of anthropology. For additional information, students should contact the Director of Departmental Honors Program, Dr. William Stuart, 301-405-1435; E-mail: wstuart@anth.umd.edu

Student Societies and Professional Organizations

Anthropology Student Association (ASA): An anthropology student association that meets regularly to plan student events and to help coordinate various student and faculty activities. For meeting times contact the Undergraduate Advisor.

The department and the ASA jointly sponsor a public lecture series.

Applied Mathematics and Scientific Computation Program (AMSC)

College of Computer, Mathematical and Physical Sciences
3103 Mathematics Building, 301-405-0924
www.amsc.umd.edu
amsc@amsc.umd.edu
Director: Dr. Konstantina Trivisa
Professors: More than 100 members from 19 units.

Academic Programs and Departmental Facilities

The Applied Mathematics and Scientific Computation Program offers a graduate program in which students combine studies in mathematics and application areas. The Program also offers an undergraduate Certificate in Computational Science. AMSC courses carry credit in mathematics, with the exception of AMSC 462. An undergraduate program emphasizing applied mathematics is available to majors in mathematics. Appropriate courses carry the MATH and STAT prefixes, as well as the AMSC prefix.

Certificate

The Certificate in Computational Science introduces students to basic computational methods for better understanding and solving problems in the physical sciences. Numerical techniques and computer architecture will be taught with the goal of applying these to situations in the physical sciences. Computational methods will be applied to problems that are not analytically tractable; for comparison, physical problems that are amenable to analysis will also be examined. The goal of the program is to enhance student understanding of numerical methods that will be of use in graduate school, academic research, and industry.

Certificate Requirements

1. **Core Requirements** - the following courses are required:

Three courses in Programming Languages, Numerical Methods, and Computer Architecture:

CMSC106 **or** CMSC131 Introduction to Programming
AMSC460 Computational Methods
AMSC462 Intro to Comp Organization and Tools for Scientific Computing

A course in which advanced computation is applied to scientific problems:

PHYS474 Computational Physics **or**
ASTR415 Computational Astrophysics

A science base:

PHYS273 Introductory Physics: Waves **or**
PHYS270 General Physics: Electrodynamics, Light, Relativity & Modern Physics **and** PHYS271 General Physics: Electrodynamics, Light, Relativity & Modern Physics Lab

Note: Any of CMSC106 **or** CMSC131, CMSC114 **or** CMSC132, CMSC214 **or** CMSC212, ENEE114, PHYS165, may be substituted for CMSC106 or CMSC131. AMSC466 may be substituted for AMSC460. CMSC311 and CMSC351 may be substituted for AMSC462.

2. **Electives**

Elective courses must be chosen from the list below such that the entire sequence of courses for the Certificate meets the following two conditions: (a) at least 12 credit hours must be at the 300-400 level; (b) at least 12 credit hours must be outside the major. In the case of multiple majors, at least 12 credit hours must be outside all the other major requirements.

ASTR 120 Introductory Astrophysics-Solar System (3)
ASTR 121 Introductory Astrophysics II-Stars and Beyond (4)
ASTR 320 Theoretical Astrophysics (3)
ASTR415 Computational Astrophysics
CMSC 114 **or** CMSC132 Computer Science I (4)
CMSC 214 **or** CMSC212 Computer Science II (4)
CMSC 250 Discrete Structures (4)
GEOL 341 Structural Geology (4)
MATH 240 Introduction to Linear Algebra (4)
MATH 241 Calculus III (4)
MATH 246 Differential Equations for Scientists and Engineers (3)
MATH 431 Geometry for Computer Graphics (3)
MATH 452 Introduction to Dynamics and Chaos (3)
MATH 462 Partial Differential Equations for Scientists and Engineers (3)
MATH 464 Transform Methods to Scientists and Engineers (3)
PHYS 171 Introductory Physics: Mechanics and Relativity (3)
PHYS 272 Introductory Physics: Fields (3)
PHYS 273 Introductory Physics: Waves (3)
PHYS 374 Intermediate Theoretical Methods (4)

PHYS 401 Quantum Physics I (4)
  or PHYS 420 Principles of Modern Physics (3)
PHYS 402 Quantum Physics II (4)
PHYS 404 Introduction to Statistical Thermodynamics (3)
PHYS 410 Classical Mechanics (4)
PHYS 411 Intermediate Electricity and Magnetism (4)
PHYS 474 Computational Physics

Undergraduate Research Experiences

An honors program provides opportunities for outstanding students to engage in research on a computational project with a faculty member. Students will be accepted into this program after their sophomore year based on their academic performance.

To obtain more information, contact the Applied Math and Scientific Computing Program, 3103 Mathematics Building, UMCP, Telephone: 301-405-0924, www.amsc.umd.edu.

Arabic Studies (ARAB)

College of Arts and Humanities
3121 Jiménez Hall, 301-405-7492
www.languages.umd.edu/AsianEastEuropean/arabic/
flagship-arabic@umd.edu
:

The Major

This 42-credit major provides students with a solid background in linguistic, literary, and cultural aspects of the study of Arabic, inclusive of the cultures of North Africa, Egypt, the Arabic-speaking countries of Asia, and the peoples of the diaspora.

The B.A. in Arabic Studies prepares students for a range of professional opportunities, including careers in government, education, business, and international development and communication. Students work toward competence in speaking, reading, writing, and listening; they will study the culture of Arabic-speaking peoples in their diverse perspectives, practices, and products; they will become conversant with the contemporary political and daily life of Arabic-speaking peoples, with cultural comparison implicit throughout their four years. It is expected that many undergraduates will choose to double major or do a double degree in Arabic and another subject, including arts and humanities majors, business, computer science, and journalism.

Requirements for the Major

All students planning to pursue the major in Arabic Studies should contact the undergraduate advisor, who will be responsible for placement, oversight, and record keeping. A grade of C (2.0) or better is required in all courses.

Prerequisites (18 credits)

Students must take the prerequisite courses or satisfy these requirements by placement:*

ARAB104	Elementary Modern Standard Arabic I-II (6 credits)
ARAB105	Elementary Modern Standard Arabic III-IV (6 credits)
ARAB106	Elementary Egyptian Colloquial Arabic I
ARAB107	Elementary Egyptian Colloquial Arabic II

*Modern Standard Arabic is the formal variety of Arabic used throughout the Arab world, particularly for reading and writing. Egyptian Colloquial Arabic is one of the major spoken varieties in the Middle East. Once credits have been received for a higher-level language focus course, a lower-level course in the same strand (written or spoken) may not be taken for credit. (ARAB204 may not be taken after ARAB205, for example. ARAB107 may not be taken after ARAB206, etc.)

COURSES REQUIRED FOR THE MAJOR
All courses are 3 credits unless noted otherwise.

Core sequence: 24 credits

ARAB204	Intermediate Modern Standard Arabic I	(6 credits)	
ARAB205	Intermediate Modern Standard Arabic II	(6 credits)	prereq 204
ARAB304	Advanced Modern Standard Arabic I		prereq 205
ARAB305	Advanced Modern Standard Arabic II		prereq 304
ARAB206	Intermediate Egyptian Colloquial Arabic III		prereq 107
ARAB207	Intermediate Egyptian Colloquial Arabic IV		prereq 206

Electives: a minimum of 18 credits

A. Required Upper-level electives in Arabic (a minimum of 9 credits)

ARAB311	The Arab World Today	pre-coreq 304
ARAB312	Islamic Culture	pre-coreq 304
ARAB321	Arabic Media	pre-coreq 304
ARAB322	Commercial Arabic	pre-coreq 304
ARAB401	Readings in Arabic Literature	prereq 305
ARAB402	Arabic Translation	prereq 305
ARAB411	US-Arab Relations	prereq 305
ARAB412	Modern Arabic Literature: A Survey	prereq 305

ARAB499 Special Topics in Arabic Studies

- Other ARAB courses may be included on written approval of UG advisor.
- All prerequisites imply "or equivalent knowledge." In cases where a student has equivalent knowledge, required language-focus credits are replaced in consultation with, and with the written approval of, the UG advisor.

B. Optional Electives in English: a maximum of 9 credits (no prereqs)

ARAB 251 Arabic Cinema
ARAB 252 Arabic Literature in Translation
ARAB 351 Arab Culture and Civilization
ARAB 499 Special Topics in Arabic Studies

Courses in Middle Eastern Studies taught in English in other departments can be substituted with the approval of the Undergraduate advisor.

Study Abroad
Students majoring in Arabic Studies are encouraged to spend a summer or a semester abroad. Credits earned toward the major during study abroad must be approved by the department prior to departure. A maximum of 15 non-UM credits may be applied to the major.

School of Architecture, Planning, and Preservation

1298 Architecture Building, 301-405-8000
www.arch.umd.edu

arcinfo@umd.edu for general information and requests
archadvise@umd.edu for undergraduate advising questions
www.lep.umd.edu for information on applying to the Limited Enrollment Program as a freshman or internal transfer student and to see the gateway requirements for Architecture
www.transferadvising.umd.edu for transfer advising questions

Dean: Garth Rockcastle
Associate Dean(s): John Maudlin-Jeronimo, Qing Shen
Assistant Dean(s): Ingrid Farrell

Architecture Program

Director: Madlen Simon
Assistant Director: Courtney Miller Bellairs
Professors: M. Bell, R. Etlin (Dist Univ Prof), S. Hurtt, G. Rockcastle, T. Schumacher, R. Vann
Associate Professors: C. Bovill, R. Eisenbach, A. Gardner, I. Gournay, B. Kelly, M. Simon
Assistant Professors: M. Ambrose, H. Koliji, L.D. Quiros Pacheco, I. Williams, B.D. Wortham-Galvin
Professors of the Practice: G. Bowden, C. Frisone, P. Noonan
Senior Lecturers: C. Miller Bellairs
Lecturers: M. al Khalil, L. Escobal, C. Lostritto, A. Pressman, M. Ramirez, R. Schneck
Professors Emeriti: W. Bechhoefer, R. Bennett, K. DuPuy, G. Francescato, J. Hill, R. Lewis, J. Loss., F. Schlesinger

The School of Architecture, Planning, and Preservation offers a four-year undergraduate program leading to the Bachelor of Science degree in architecture. The School offers graduate programs leading to the professional degrees of Master of Architecture, Master of Historic Preservation, Master of Community Planning, and Master of Real Estate Development. In addition, joint professional degrees and certificates are offered. The School offers a post-professional Master of Science in Architecture degree and a Ph.D. in Urban and Regional Planning and Design. Students graduating with the undergraduate major in architecture typically require two years to complete the curriculum leading to the professional degree in architecture.

For information see the School of Architecture, Planning, and Preservation entry in Chapter 6.

Art (ARTT)

College of Arts and Humanities
1211-E Art/Sociology Building, 301-405-7790
www.art.umd.edu
artdept@umd.edu
Chair: J. Ruppert
Professors: T. Lapinski, F. Sham
Associate Professors: P. Craig, D. Gavin, M. Humphrey, P. Kehoe, R. Klank, R. Lozner, J. McCarty, B. Morse, W. Richardson, J. Thorpe
Assistant Professors: A. Buck-Coleman (Asst Prof), J. Pinder, J. Strom
Lecturers: L. Berns (Lecturer), E. Bisese, M. Boone (Lecturer), K. Capps (Lecturer), E. Conover, A. Georgievska-Shine, K. Holder, S. Jones, N. Ratnapala, F. Rehak, B. Tyroler, G. Vafai, R. Weil
Professors Emeriti: C. Demonte (Distinguished Scholar-Teacher), D. Driskell (Distinguished University Professor)

The Major

The Department of Art is a place where students transform ideas and concepts into objects and visual experiences. It is an environment rich in art theory, criticism, and awareness of diverse world culture. Students are taught to articulate and refine creative thought and apply knowledge and skill to the making of images, objects, and experimental works. Courses are meaningful to students with the highest degree of involvement in the program and those who take electives. Students majoring in Art take a focused program of courses folded into a general liberal arts education offered by the university.

The diverse faculty of artists in the department strive to foster a sense of community through the common experience of the creative process, sharing their professional experience freely with students.

The areas of concentration within the major are design, drawing, painting, printmaking, digital imaging, and sculpture. Areas of study include papermaking, photography, and art theory. Internships and independent studies are also available.

Requirements for the Major

Undergraduate students are offered a Bachelor of Arts (B.A.) in Art . The requirements consist of a curriculum of 36 credits of art studio and art theory courses, and 12 additional credits of art history and art theory courses as a supporting area for a total of 48 major required credits. No course with a grade less than C may be used to satisfy major or supporting area requirements.

Foundation Courses		**15 Credits**
ARTT 100	Two Dimensional Art Fundamentals	
ARTT 110	Elements of Drawing I	
ARTT 150	Introduction to Art Theory	
ARTT 200	Three Dimensional Art Fundamentals	
ARTT 210	Elements of Drawing II	

Intermediate Courses		**9 Credits**
	one course from three of the following four areas:	
Painting	ARTT 320	
Sculpture	ARTT 330, 331, 332, 333, 334	
Printmaking	ARTT 340, 341, 342, 344	
Design	ARTT 350, 351, 352	

Advanced Courses		**12 Credits**
ARTT 418	Advanced Drawing	
ARTT Theory	One 300/400 ARTT theory*	
ARTT elective	One 300/400 ARTT elective	
ARTT elective	One 400 level ARTT elective	

**course offering varies*

Supporting Area		**12 Credits**
ARTH 200	Art of the Western World to 1300	
ARTH 201	Art of the Western World after 1300	
ARTH/Art Theory	Two 300/400 level ARTH/Art Theory electives	
		48 Total Credits

Advising

The name of the advisor for each class is available in the department office. Each second-semester sophomore and first-semester senior is required to see his or her advisor within the department. Additionally, each student is strongly encouraged to see his or her advisor in the department each semester.

Internships

Students have worked in a variety of internship settings. These have included assisting professionals complete public commissions, commercial or cooperative gallery and exhibition duties, and working in professional artists' workshops in the Baltimore and Washington, D.C. metropolitan areas. Additional information is available in the Department of Art office.

Honors Program

The Honors Program is available to art studio majors for the purpose of creating opportunities for in-depth study and enrichment in areas of special and creative interest. To qualify, students must be art majors with junior or senior status, a major G.P.A of 3.2, and an overall G.P.A. of 3.0. The program requires a total of 12 credits in Honors course work. One course (3 credits) may be taken at the 300 or 400-level, and three courses (3 credits each) at the 400-level. There is a thesis component in one of the 400-level courses. Please consult the Honors Director for additional information.

Scholarships and Financial Assistance

The Department of Art administers eight Creative and Performing Arts Scholarships (CAPAs) that are available to continuing students, and entering freshman and transfer students. This is a merit-based scholarship that is awarded on a one-year basis, and may be renewed. Additional information is available in the main office of the department. The James P. Wharton Prize is awarded to the outstanding Art major participating in the December or May graduation exhibition. The Van Crews Scholarship is designated for outstanding Art majors concentrating in design. It is awarded for one year and is renewable. The David C. Driskell Award for the Outstanding Graduating Graduate Student is awarded at the end of the academic year.

Student Art Exhibitions

The West Gallery (1309 Art/Sociology Building) is an exhibition space devoted primarily to showing the art work of students. It is managed by undergraduate art majors, assisted by a faculty advisor.

Lecture Program

The Department of Art has a lecture program in which artists and critics are brought to the campus to explore ideas in contemporary art. A strong component of this program is devoted to diversity.

ART HISTORY AND ARCHAEOLOGY (ARTH)

College of Arts and Humanities
1211-B Art/Sociology Building, 301-405-1479
www.arthistory.umd.edu
Chair: W. Pressly
Professors: J. Hargrove, F. Kelly, J. Kuo, S. Mansbach, M. Venit, A. Wheelock
Associate Professors: A. Colantuono, M. Gill
Assistant Professors: R. Ater, S. Hill, E. Marlowe, J. Shannon, Y. Suzuki, A. Volk
Professors Emeriti: D. Denny (Prof Emeritus), M. Spiro (Assoc Prof Emerita), J. Withers (Assoc Prof Emerita)

The Major

The faculty and students of the Department of Art History and Archaeology form a dynamic nucleus within a major research university. The program, leading to the B.A. degree in Art History, provides a diverse selection of courses in the art and archaeology of Africa, Asia, Europe, and the Americas. The goal of the department is to develop the student's critical understanding of visual culture in both art historical and archaeological contexts.

The department has strong coverage in Western art from the classical period up to the present. In addition, by taking advantage of the unusual diversity of faculty interests, students can study in areas not traditionally offered in departments of art history and archaeology, such as the art and archaeology of Africa, art of diaspora cultures, art and archaeology of the Americas, and Asian art. Grounding in art historical and archaeological theory and method is provided in a number of courses. Studies in archaeology may be pursued in cooperation with other University departments.

Courses offered by this department may be found under the following acronym: ARTH.

Program Objectives

The Department of Art History and Archaeology's B.A. program provides majors critical knowledge of visual culture in both art historical and archaeological contexts. The program promotes visual literacy in the history of art of global cultures from prehistoric times to the present; cultivates strong research, written, and critical thinking skills; and develops students' ability to synthesize cultural, historical, political, and social information as it bears upon the visual arts.

Program Learning Outcomes

Students are expected to fully engage with the curriculum and the opportunities presented for learning and research. Having completed B.A. in Art History, students should have acquired the following knowledge and skills:

1. An ability to demonstrate knowledge of a large set of artistic monuments, objects, and performances in the history of art and in specific periods and/or cultures and place the visual arts in cultural, historical, political, and/or social contexts.

2. An ability to communicate effectively about art in writing, applying complex forms of analysis in essay-length papers using clear and concise prose.

3. An ability to employ the appropriate technologies for conducting research in the history of art, including print sources and/or electronic information.

4. An ability to recognize and understand fundamental art historical methods encompassed by but not limited to connoisseurship, stylistic chronology, visual and technical analysis, in addition to specialized methods of interpretation and criticism and other contextual approaches.

Academic Programs and Departmental Facilities

The location of the university between Washington and Baltimore gives students the opportunity to use some of the finest museum and archival collections in the world for their course work and independent research. The department encourages students to hold internships at a number of these institutions. Curator/professors, exhibitions in The Art Gallery at the University of Maryland, interactive technologies, and the extensive use of study collections bring regional and distant museums into the classroom.

The department is in the forefront of exploring digital imaging technologies for art historical and archaeological teaching, research, and publication.

Requirements for the Major

Requirements for the major in Art History are as follows:

		Credits
	One from:	3
ARTT100	Two Dimensional Art Fundamentals	
ARTT110	Elements of Drawing I	
	ARTH required courses:	
ARTH2xx	three ARTH courses at the 200 level	9
ARTH300/400	seven ARTH courses at the 300-400 level	21
	Supporting Area:	12
	A supporting area of four courses in coherently related subject matter outside the department of Art History and Archaeology at the 300-400 level	

No credit toward the major can be received for ARTH 100 or 355.
No course with a grade lower than C may be used to satisfy major or supporting area requirements.

Advising

Departmental advising is mandatory for all majors.

Internships

Qualified majors should consult with a departmental advisor for internship opportunities.

Honors Program

Qualified majors may participate in the department's honors program, which requires the completion of ARTH488 or ARTH489, ARTH 496 (Methods of Art History) and ARTH 499 (Honors Thesis). Consult a departmental advisor for details.

Awards and Recognition

The Department of Art History and Archaeology offers three undergraduate awards each year: the J.K. Reed Fellowship Award to an upper-level major and the George Levitine and Frank DiFederico Book Awards to seniors nearing graduation.

Asian American Studies Certificate

Office of Undergraduate Studies
1120 Cole Student Activities Building, 301.405.0996
www.aast.umd.edu
aast@umd.edu

Director: Larry Hajime Shinagawa, Ph.D.

The Asian American Studies Program (AAST) provides students with the opportunity to study critically the experiences of Asian Americans. Through an interdisciplinary approach, students examine the histories, communities, and cultures of Asian Americans as both distinctive from and connected to the broader themes for diversity, ethnicity, race, gender and migration in theAmericas. AAST offers a 15 credit-hour minor, and a 21 credit-hour certificate for students. For the Minor, courses may be cross-listed in other departments and some may satisfy CORE and Diversity requirements. The Certificate program will be discontinued starting Fall 2009.

Minor Requirements:

A. AAST Core Courses (6 credits):

1. Introduction to Asian American Studies (AAST 200/AMST 398C)
2. Asian American History and Society (AAST 201/HIST 219G)

B. Upper-level Courses (6 credits): In addition to the two required foundational courses, students will also select two additional upper-level (300/400) courses, one of which would be at the 400 level, from the following list of regular and special topics courses: AAST 384, AAST 388, AAST 398A, AAST 398B, AAST 398C, AAST 398D, AAST 398G, AAST 398L, AAST 398P, AAST 420/WMST 420, AAST 424/SOCY 424, AAST 498A, AAST 498B, AAST 498C, AAST 498D, AAST 498E, AAST 498F, AAST 498G, AAST 498I, AAST 498J, AAST 498K, AAST 498L, AAST 498M, AAST 498N, AAST 498P and AAST 498T.

C. The final requirement for the Minor is the successful completion of AAST 378 (Experiential Learning - 3 credits), a semester-long internship at an organization that centers its efforts on Asian American issues. Such organizations may include governmental units, non-profit agencies, and on-campus organizations.

Certificate Requirements (NOTE: the Certificate Program will be discontinued starting Fall 2009).

A. AAST Core Courses (6 credits):

1. Introduction to Asian American Studies (AAST200)

2. Asian American History and Society (AAST201)

B. Elective Courses (12 credits): Students may earn the 12 required elective credits by successfully completing any of a number of special topics courses AAST offers each semester. Elective requirements may also be satisfied through successful completion of courses offered through other departments or programs. Students must obtain approval from the AAST program director for courses outside of AAST offerings.

C. AAST Senior Capstone (3 credits): Students participate in a faculty-guided research project (AAST388) or an experiential learning project such as an internship with an Asian American or Asian Pacific American organization (AAST378).

D. All courses toward the Certificate must be completed with minimum grade of "C." Students interested in earning the certificate should first schedule an advising appointment at the AAST office. Students in good standing may then officially enroll in the certificate program. While students may begin taking courses before they enroll in the certificate program, they should schedule an advising appointment as soon as possible.

Astronomy (ASTR)

College of Computer, Mathematical and Physical Sciences
1204 Computer and Space Sciences Building, 301-405-3001
www.astro.umd.edu
astr-grad@deans.umd.edu
Chair: S. Vogel
Director: J. Trasco

Professors: M. A'Hearn, D. Hamilton, J. Harrington, A. Harris, L. Mundy, E. Ostriker, K. Papadopoulos, W. Rose, S. Veilleux
Associate Professors: S. McGaugh, M. Miller, C. Reynolds, D. Richardson
Assistant Professors: A. Bolatto, M. Ricotti
Instructors: G. Deming
Lecturers: M. Hayes-Gehrke, N. Miller, P. Romani
Adjunct Professors: N. Gehrels, S. Holt, R. Mushotzky, N. White
Professors Emeriti: R. Bell, J. Earl, W. Erickson, M. Leventhal, D. Wentzel
Visiting Faculty: D. Neufeld

The Major

The Astronomy Department offers courses leading to a Bachelor of Science in Astronomy as well as a series of courses of general interest to non-majors. Astronomy majors are given a strong undergraduate preparation in Astronomy, Mathematics, and Physics. The degree program is designed to prepare students for positions in government and industry laboratories or for graduate work in Astronomy or related fields. A degree in Astronomy has also proven valuable as preparation for non-astronomical careers.

Academic Programs and Departmental Facilities

The Department of Astronomy is a partner in the Combined Array for Research in Millimeter-Wave Astronomy (CARMA) which operates a millimeter wavelength radio array located near Bishop, California. The array is the largest and most sensitive array of its type in the world. The Department is a partner with Kitt Peak National Observatory in the building of a large format near infrared camera for the Mayall 4-meter optical telescope. Opportunities are available for undergraduates to become involved in research with both facilities. The Department also operates a small observatory on campus. There are four fixed telescopes ranging in aperture from 20" to 7". There are also six portable 8" telescopes. This facility is used extensively for undergraduate classes. An Observatory Open House Program for the public is also run. Details are available from the Astronomy Department office.

Requirements for the Major

	Required Courses	**Credits**
ASTR120	Introductory Astrophysics: Solar System	3
ASTR121	Introductory Astrophysics II: Stars and Beyond	4
ASTR310	Observational Astronomy	3
ASTR320	Theoretical Astrophysics	3
ASTR4--	400 level astronomy courses	6
PHYS171*	Introductory Physics: Mechanics and Relativity	3
PHYS174	Physics Laboratory Introduction	1
PHYS272*	Introductory Physics: Fields	3
PHYS273*	Introductory Physics: Waves	3
PHYS275	Experimental Physics I: Mechanics and Heat	2
PHYS276	Experimental Physics II: Electricity and Magnetism	2
PHYS374	Intermediate Theoretical Methods	4
PHYS401	Quantum Physics I	4
PHYS404	Introduction to Statistical Thermodynamics	3
MATH140	Calculus I	4
MATH141	Calculus II	4
MATH240	Introduction to Linear Algebra	4
MATH241	Calculus III	4
MATH246	Differential Equations for Scientists and Engineers	3

**With the permission of the advisor, PHYS 161, 262, 263 can be substituted for this sequence.*

The program requires that a grade of C or better be obtained in all courses required for the major. Students planning to double major (or to seek a double degree) in Physics and Astronomy should note that this combination does not automatically satisfy CORE Advanced Studies. They should discuss the issue with their academic advisors to assure that their program meets all degree requirements.

Detailed information on typical programs and alternatives to the standard program can be found in the pamphlet entitled, *Department Requirements for a Bachelor of Science Degree in Astronomy* which is available from the Astronomy Department office.

Requirements for the Minor

A Minor in Astronomy may be earned by completing the following with grades of C or better. An appointment must be made to register for the minor before final 30 credits are taken. Please

contact Department for complete rules and procedures.

		Credits
ASTR100	Introduction to Astronomy, **OR**	3
ASTR101	General Astronomy, **OR**	4
ASTR1--	any other Introductory sequence in Astronomy	
ASTR 220	Collisions in Space	3
	Three from:	
ASTR300	Stars and Stellar Systems	3
ASTR330	Solar System Astronomy	3
ASTR340	Origin of the Universe	3
ASTR380	Life in the Universe - Astrobiology	3
ASTR498	Special Problems in Astronomy	3
CRSxx	Or a course approved by the department	3

Honors Program

The Honors Program offers students of exceptional ability and interest in Astronomy opportunities for part-time research participation which may develop into full-time summer projects. Honors students work with a faculty advisor on a research project for which academic credit may be earned. Certain graduate courses are open for credit toward the bachelor's degree. (Students are accepted into the Honors Program by the Department's Honors Committee on the basis of grade point average or recommendation of faculty.) Honors candidates submit a written proposal on their research project and enroll in ASTR 399, complete a research project, write a thesis and do an oral presentation before a committee. Satisfactory grades lead to graduation With Honors (or High Honors) in Astronomy.

For Additional Information

Further information about advising and the Honors Program can be obtained by calling the Department of Astronomy office at 301-405-3001. Students who have been away more than two years may find that due to curriculum changes the courses they have taken may no longer be adequate preparation for the courses required to complete the major. Students in this situation must meet with the Departmental Advisor to make appropriate plans.

Atmospheric and Oceanic Science (ATMOS)

College of Computer, Mathematical and Physical Sciences
3417 Computer and Space Sciences Building, 301-405-5391
www.atmos.umd.edu
Chair: J. Carton
Professors: A. Busalacchi, J. Carton, R. Dickerson, R. Hudson, E. Kalnay, Z. Li, R. Murtugudde, S. Nigam, R. Pinker, R. Salawitch, D. Zhang
Associate Professors: N. Zeng
Assistant Professors: K. Ide (Asst Prof), D. Kirk-Davidoff
Adjunct Professors: B. Doddridge, M. King, K. Pickering
Professors Emeriti: F. Baer, C. Brown (Adjunct Prof), R. Colwell (Dist Univ Prof Emerita, Affiliate Prof), H. Van Den Dool (Adjunct Prof), R. Ellingson, R. Higgins (Adjunct Prof), V. Kousky (Adjunct Prof), L. Uccellini (Adjunct Prof), A. Vernekar

Requirements for the Minor

Three Minor tracks are available:
Minor in Meteorology
Minor in Atmospheric Sciences
Minor in Atmospheric Chemistry

The Minor in Meteorology is the most suitable preparation for graduate students in Atmospheric and Oceanic Science. For more details visit: atmos.umd.edu/MINOR or contact the Undergraduate Advisor, R. Hudson: (hudson@atmos.umd.edu).

Minor in Meteorology

This Minor will provide the students with a general background in Meteorology as offered by the lower level courses, and a broader background on a wide range of sub-fields in Meteorology and on current issues in Climate Research, as provided by the two required courses. This Minor is aimed at students who wish to be informed about this field, who do not have an a priori interest to pursue graduate work in this field, but who might pursue careers where background in Meteorology is important, such as environmental policy, government, and industry. This Minor is not open to students who major in Physical Sciences with a concentration in meteorology, or who major in Physics with the Meteorology Physics area of concentration.

A total of 15 credits is required. All courses presented for the Minor must be passed with a grade of "C" or better.

The students must choose two electives from:

- METO 123 Global Change)
- METO 200 Weather and Climate
- Any other 400 level courses offered below as electives

Two required courses:

- METO 400 The Atmosphere
- METO 401 Global Environment

One additional elective from:

- Any 400 level courses offered in the Department of Meteorology on a regular basis or from a list of non-permanent electives that will be offered by Research Scientists, regular faculty from Meteorology, or members of the Earth System Science Interdisciplinary Center (ESSIC)
- Courses offered by the Department of Geology and Geography, such as:
    - GEOL 437 (Global Climate Change: Past and Present)
    - GEOL 452 (Watershed and Wetland Hydrology)
    - GEOG 446 Applied Climatology
    - GEOG 447 Advanced Biogeography
    - GEOG 472 Remote sensing

Minor in Atmospheric Sciences

This minor will provide a general background in meteorology as offered by the lower level courses, and a solid background in Atmospheric Physics (METO 431) and Atmospheric Dynamics (METO 432), as offered b two required courses. It is aimed at students that might consider graduate work in Meteorology, or prepare them for the very favorable job market in the Washington area, where a background in Meteorology can be an important asset. Students attempting this minor will need as strong background in Mathematics, Physics and Chemistry at the level of MATH 240 or 461, PHYS 270 and PHYS 271; CHEM 103, which are prerequisites for the required courses. Student interested in taking this Minor program should contact the undergraduate advisor in the Department of meteorology for advisement. This minor is not open to students who major in Physical Sciences with a concentration in meteorology, or who major in Physics within the Meteorology Physics area of concentration.

This Minor will require 15 credits. All courses presented for the Minor must be passed with a grade of "C" or better.

The students must choose two electives from:

- METO 123 Global Change
- METO 200 Weather and Climate
- METO 400 The Atmosphere

The following two courses are required:

- METO 431 Meteorology for Scientists and Engineers I
- METO 432 Meteorology for Scientists and Engineers II

One elective from:

- Other 400 level courses offered in the Department of Meteorology on a regular basis or from a list of non-permanent electives that will be offered by Research Scientists, regular faculty from Meteorology, or members of theEarth System Science Interdisciplinary Center (ESSIC)
- Courses offered by the Department of Geology and Geography, such as:
    - GEOL 437 Global Climate Change: Past and Present
    - GEOL 452 (Watershed and Wetland Hydrology)
    - GEOG 446 Applied Climatology
    - GEOG 447 Advanced Biogeography
    - GEOG 472 Remote sensing

Minor in Atmospheric Chemistry

This Minor will provide the students with a general background in Meteorology as offered by the lower level required courses, and a background on issues in Atmospheric Chemistry. This Minor track is intended for students who might pursue careers where background in Atmospheric Chemistry is needed, such as Air Pollution, Atmospheric Chemistry, and environmental issues. It is aimed at students that might consider graduate work in Atmospheric Chemistry, or prepare them for a very favorable job market in the Washington area, where a background in Meteorology can be an important asset. Students attempting this minor will need a strong background in mathematics, Physics and Chemistry at the level of MATH 240 or 461, PHYS 270 and PHYS 271, CHEM 481 (preferred) or CHEM 103, which are prerequisites for the required courses. Students interested in taking this Minor program should contact the Undergraduate Advisor in the Department of Meteorology. This Minor is not open to students who major in Physical Sciences with a concentration in Meteorology, or who major in Physics within the Meteorology Physics area of concentration.

A total of 15 credits is required. All courses presented for the Minor must be passed with a grade of "C" or better.

The students must choose two electives from:

- METO 123 Global Change
- METO 200 Weather and Climate
- Any METO 400 level course offered below as elective

The following two courses are required:

- METO 431 Meteorology for Scientists and Engineers I
- METO 434 Air Pollution

One elective from:

- CHEM 474 (Environmental Chemistry)
- GEOL 471 (Geochemical Methods of Analysis)
- Other 400 level courses offered in the Department of Meteorology on a regular basis or from a list of non-permanent electives that will be offered by Research Scientists, regular faculty from Meteorology, or members of theEarth System Science Interdisciplinary Center (ESSIC)
- Courses offered by the Department of Geography and Geology such as:

> GEOG 446 (Applied Climatology)
> GEOG 447 (Advanced Biogeography)
> GEOG 472 (Remote Sensing)
> GEOL 437 (Global Climate Change: Past and Present)
> GEOL 452 (Watershed and Wetland Hydrology)

FISCHELL DEPARTMENT OF BIOENGINEERING (BIOE)

A. James Clark School of Engineering
2330 Jeong H. Kim Engineering Building, 301- 405-7426
www.bioe.umd.edu/
bioe-undergrad@umd.edu
Chair: W. Bentley (Prof, Chair)
Director: P. Kofinas (Prof, Graduate Program Director), A. Shirmohammadi (Prof, Undergraduate Program Director)
Professors: A. Johnson, Y. Tao
Associate Professors: I. Balaras (Assoc Prof), J. Fisher, K. Herold, H. Montas, Y. Yu (Assoc Prof; joint with UMD School of Pharmacy)
Assistant Professors: J. Aranda-Espinoza, Y. Chen, A. Hsieh, S. Muro (Asst Prof), J. Seog (joint with ENMS), S. Shah, I. White (Asst Prof)
Lecturers: G. Rahmoeller (Lecturer)
Affiliate Professors: C. Fenselau Cotter (Prof, Affiliate Prof), D. DeVoe (Affil Assoc Prof, Prof)
Affiliate Associate Professors: S. Raghavan (Assoc Prof, Affil Assoc Prof)
Adjunct Professors: T. Barbari, B. Griffith, G. Payne, J. Vossoughi (Adjunct Asst Prof, Adjunct Prof)
Adjunct Associate Professors: L. Abts (Res Assoc Prof, Aff Res Assoc Prof), J. Culver, H. Ghandehari, V. Vakharia, C. Yu
Adjunct Assistant Professors: R. Shekhar, Z. Wu

The Major

Bioengineering is a combination of biological engineering (engineering based upon the science of biology) and biomedical engineering (engineering applied to human health care). It is the application of a systematic, quantitative, and integrative ways to think about and solve important problems of biological origin. The engineering principles of this field are rooted in the physical, chemical, and mathematical sciences and used to study biological systems at all levels of scale. It advances fundamental concepts, creates knowledge from the molecular to the organ and the systems levels, and develops innovative biologics, materials, mathematical models, processes, implants, devices, and informatics approaches for the betterment of humankind.

Bioengineers specialize in those products made from, used with, or applied to biological organisms. In addition to engineering science and design, they study biochemistry, cell biology, microbiology, genetics, physiology, bioinformatics, biorheology, bioimaging, and biosystems. The symbiosis between engineering and biology gives bioengineers unique capabilities in our modern world.

Courses offered by this department may be found under the following acronym: BIOE

Program Objectives

The Undergraduate Program in Bioengineering is founded in biology, driven by human health issues, and is forward-thinking. Our objective is to marry the principles and applications embedded in engineering with the sciences of biology. Maryland bioengineers gain a broad-based education in which engineering approaches are brought to bear on understanding and improving living systems and their environment..

We aspire to be among the very best, providing exceptional educational and practical experiences for our students. We will educate students to excel in the field of bioengineering and carry out research and development of bio-based systems that will improve health care throughout the world.

Program Learning Outcomes

- Demonstrate knowledge of fundamental principles in engineering and biology
- Demonstrate commitment to the biological engineering/biomedical engineering sector
- Experience a multicultural, collegiate working environment
- Gain experience in design and group projects
- Develop an ability to write and present their projects effectively

Academic Programs and Departmental Facilities

The Fischell Department of Bioengineering has established relationships with biomedical research centers, such as the University of Maryland Biotechnology Institute, the National Institutes of Health, the Food and Drug Administration (FDA), USDA-ARS, USEPA, and other educational institutions such as the University of Maryland Baltimore (UMB) Schools of Medicine, Dentistry, and Pharmacy. Our undergraduate students will learn from regulatory experts through collaborative research with FDA scientists and engineers located only 5 miles from campus. They will also have the opportunity to work on bio-based research in several USDA-ARS Laboratories located only 2 miles north of campus. In addition,They will have the opportunity to perform internships at the UMB, work in its labs, and gain exposure to clinical practice. Our growing interdisciplinary faculty is dedicated to integrating bioengineering with these programs.

Bioengineering laboratories include:

- Cell Biophysics Laboratory
- Tissue Engineering and Biomaterials Engineering Laboratory
- Orthopaedic Mechanobiology Laboratory
- Human Performance Laboratory
- Functional Macromolecular Laboratory
- Neuromuscular Bioengineering Laboratory
- Bioimaging and Machine Vision Laboratory
- Model Analysis Laboratory
- Bioenvironmental Laboratory
- The Balaras Group
- Biomolecular and Metabolic Engineering Laboratory
- Biophotonic Imaging Laboratory
- The Herold Laboratory
- Molecular Mechanics Laboratory
- The Muro Group
- Photonic Biosensors Laboratory
- Soil and Water Engineering Laboratory
- Water Quality Laboratory

Admission to the Major

All Bioengineering majors must meet admission, progress, and retention standards of the A. James Clark School of Engineering.

Requirements for the Major

Following is the list of the course requirements for the Bioengineering Undergraduate Program on semester basis. Each student following the course template should be able to graduate in 4 years. Each student will meet with his/her Faculty Advisor every semester to plan the schedule of courses for the subsequent semester. Some of the students in the bioengineering program may elect to pursue professional degrees such as Medical, Dental, Law, etc., thus they may need certain courses that those professional schools require and they should be aware of it and discuss it with their Faculty Advisor. Some of these courses may easily be taken as "Biological Science Electives" to avoid extra load. Students interested in health professions may also view the requirements at www.prehealth.umd.edu.

	FRESHMEN YEAR	1st Semester	2nd Semester
MATH140	Calculus I	4	
MATH141	Calculus II		4
CHEM135	General Chemistry for Engineers	3	
CHEM136	General Chem for Engineers Lab	1	
ENES100	Introduction to Engineering Design *(**can be taken 1st or 2nd semester)*	3	
ENES102	Statics *(**can be taken 1st or 2nd semester)*		3
ENGL101	Introduction to Writing		3
PHYS161	General Physics		3
BIOE120	Biology for Engineers	3	
BIOE121	Biology for Engineers Lab	1	
	CORE I		3
	Total	**15**	**16**

	SOPHOMORE YEAR		
MATH246	Differential Equations for Sci and Engr		3
CHEM231	Organic Chemistry	3	
CHEM232	Organic Chemistry Lab	1	
BSCI330	Cell Biology and Physiology	4	
ENES220	Mechanics of Materials	3	
PHYS260	General Physics	3	
PHYS261	General Physics Lab	1	
BIOE241	Biocomputation Methods		3
ENME232 or ENME320	Thermodynamics		3
Bio Sci	Elective I*		3
	CORE II		3
	Total	**15**	**15**
	JUNIOR YEAR		
MATH241	Calculus III	4	
BIOE332	Transport Processes Design		3
BIOE340	Physiological Systems and Lab	4	
BIOE420	Bioimaging		3
BIOE453	Biomaterials		3
BIOE454	Biomaterials Lab		1
BIOE455	Basic Electronic Design	3	
ENME331 or ENCE 305	Fluids	3	
Bio Sci	Elective II*		3
	CORE III	3	
	CORE IV		3
	Total	**17**	**16**
	SENIOR YEAR		
ENGL393	Technical Writing	3	
BIOE404	Biomechanics		3
BIOE456	Bioinstrumentation	3	
BIOE471	Biological Systems Control	3	
BIOE485	Capstone I	3	
BIOE486	Capstone II		3
Bio Sci	Elective III*		3
Eng Sci	Elective I**	3	
Eng Sci	Elective II**		3
	CORE V	3	
	CORE VI		3
	Total	**18**	**15**
	Total Credits for Degree	127	

*Please visit www.bioe.umd.edu/undergrad/ug-bio-electives.html for a sample list of acceptable Biological Science electives. Other courses may be acceptable pending advisor approval. One of these courses have to be at 300 or above level, one has to be at 200 or above level, and the third one can be at any level.
**Please visit www.bioe.umd.edu/undergrad/ug-scitech-electives.html for a sample list of acceptable Engineering electives. Other courses may be acceptable pending advisor approval. One of these courses must be at the 300 or above level and the other course can be at any level approved by the advisor.

Advising

All Bioengineering majors must participate in an advising session prior to registering each semester. Students are assigned to a faculty advisor during their first semester in the major. Any questions about the program may be directed to the Bioengineering Department Office, 2330 Jeong H. Kim Engineering

Building, 301-405-7426.

Undergraduate Research Experiences

All students in our major have the opportunity to participate in research in state-of-the-art labs on campus or at surrounding government or industrial locations, either through projects within the Department or through the Engineering Co-op and Career Services office. Special programs and services include the ASPIRE Program, in which students collaborate with faculty and staff on real-world engineering projects; the Maryland Center for Undergraduate Research, which assists students in finding on and off campus research opportunities; and the NSF-sponsored Research Experiences for Undergraduates (REU) Program, in which students work with full-time faculty, visiting scientists, and others on relevant research. Our REU site is the only one of its kind in the nation dedicated to molecular and cellular engineering.

Internships

Bioengineering students may get the opportunity to intern in our faculty Laboratories as well as several Federal agencies such as NIH in the area. The College of Engineering Coop Office provides excellent information for internship opportunities.

Student Societies and Professional Organizations

Bioengineering students may join the student chapter of BMES (Biomedical Engineering Society) or to the student chapter of ASABE (American Society of Agricultural and Biological Engineers) or both. They also may join other college or campus based student organization if they so desire. Both of these student chapters conduct their activities under an umbrella organization called SoBE (Society of Biological Engineers).

Scholarships and Financial Assistance

The University and the A. James Clark School of Engineering offer a range of financial support to talented undergraduate students enrolled at the School. Offerings include the A. James Clark Endowed Scholarship fund and the Benjamin T. Rome Scholarship. Our program is competitive, with awards made on the basis of merit, financial need, and other factors. For more information on a variety of scholarships, please visit www.ursp.umd.edu.

In addition, the Office of Student Financial Aid (OSFA) administers all types of federal, state and institutional financial assistance programs and, in cooperation with other university offices, participates in the awarding of scholarships to deserving students. For information, please visit: www.financialaid.umd.edu.

We also have several departmental annual awards and scholarships that students may apply and be selected based on their scholastic achievements, service to the department and the profession. These award are open to juniors and seniors in the program. Information on these annual awards and scholarship may be obtained from the faculty advisors in the department.

Biological Sciences Program (BSCI)

College of Chemical and Life Sciences
1322 Symons Hall, 301-405-6892
www.chemlife.umd.edu
Dr. Joelle Presson, Assistant Dean Academic Undergraduate Programs; Dr. Marcia Shoffner, Assistant Director Biological Sciences Program
:

The Major

The Biological Sciences major is jointly offered by the Departments of Biology, Cell Biology & Molecular Genetics, and Entomology. All Biological Sciences majors complete a common sequence of introductory and supporting courses referred to as the Basic Program. In addition, students must complete an Advanced Program within one of the following specialization areas:

- Cell Biology & Genetics (CEBG)
- Ecology & Evolution (ECEV)
- General Biology (GENB)
- Microbiology (MICB)
- Physiology & Neurobiology (PHNB)
- Individualized Studies (BIVS)

A complete list of specialization area requirements can be found on our website, www.chemlife.umd.edu. Note that the Individualized Studies specialization (BIVS) requires permission of the Assistant Dean of Undergraduate Academic Programs, and involves an approved proposal to do coursework in the College and in other disciplines. Further questions about Biological Sciences can be directed to the Undergraduate Academic Program Office at 301-405-6892.

Biological Sciences at the University of Maryland at Shady Grove

The Biological Sciences Program at the University of Maryland offers a degree program at Universities at Shady Grove. The Biological Sciences Program at Shady Grove offers the Advanced Program courses normally taken in the junior and senior years. More information is available at: www.life.umd.edu/biological_sciences/Shadygrove.html

Requirements for the Major

		Credits
CORE	**CORE Program Requirements**	**30**
	Basic Program in Biological Sciences	**15**
BSCI105	Principles of Biology I	4
BSCI106	Principles of Biology II	4
BSCI207	Principles of Biology III	3
BSCI222	Principles of Genetics	4
	Supporting courses	**30-32**
MATH130 **or**	Calculus I	3
MATH140		4
MATH131 **or**	Calculus II	3

MATH141		4
CHEM131/132*	Fundamentals of General Chemistry /Lab	4
CHEM231/232	Organic Chemistry I / Lab	4
CHEM241/242	Organic Chemistry II / Lab	4
CHEM271/272*	Gen Chem & Energetics / Gen Bioanalytical Lab	4
PHYS121	Fundamentals of Physics I, **or**	4
PHYS141	Principles of Physics	4
PHYS122	Fundamentals of Physics II, **or**	4
PHYS142	Principles of Physics	4
	**New chemistry courses replace CHEM 103 and CHEM 113*	
	Advanced Program in Specialization Area	**27**
	See website for details of specialization Area requirements.	
ELECT	**Electives**	**15-18**

A grade of C or better is required for BSCI 105, 106 and 222 (the diversity course), all courses in the Advanced Program, and all supporting courses (math, chemistry, and physics). Majors in Biological Sciences cannot use any Chemical and Life Sciences course to fulfill CORE Advanced Studies requirements, including courses in CHEM or BCHM.

Advising

Advising is mandatory during each pre-registration period for all Biological Sciences majors. All freshmen and new transfer students will be assigned an advisor from the College of Chemical and Life Sciences Student Services advising staff. Students will be assigned to a departmental faculty advisor once a basic sequence of courses has been successfully completed. The departmental faculty advisors are coordinated by the following persons for the indicated specialization areas. These coordinating advising offices can be contacted for making appointments with an advisor or for any other information regarding that specialization area.

Straney	1225 H.J. Patterson	301-405-2766	CEBG,GENB,MICB
Compton	2227 Biology-Psychology	301-405-6904	ECEV, PHNB
Kent	3142 Plant Sciences	301-405-3911	GENB
Presson	1322 Symons Hall	301-405-6892	BIVS, Education Double major

Honors Program

Outstanding students are encouraged to apply to departmental Honors Programs. Through the Honors Programs students will become actively involved in the ongoing scientific research at the university. Information about these honors programs may be obtained from the Undergraduate Academic Programs Office, 1322 Symons Hall, 301-405-6892.

Biology (BIOL)

College of Chemical and Life Sciences
2227 Biology-Psychology Building, 301-405-6904
www.biol.umd.edu
bioundergrad@umd.edu
Chair: R. Payne (Prof)
Professors: G. Borgia, C. Carr, A. Cohen, M. Colombini, D. Gill, D. Inouye, W. Jeffery, T. Kocher, J. O'Connor, D. Poeppel, A. Popper, M. Reaka, S. Via, G. Wilkinson
Associate Professors: I. Ades, M. Cummings, J. Dietz, M. Dudash, W. Fagan, C. Fenster, I. Forseth, W. Higgins, E. Quinlan, K. Shaw, S. Sukharev, S. Tishkoff
Assistant Professors: R. Araneda, A. Bely, K. Carleton, C. Castillo-Davis, E. Haag, P. Kanold, H. Lee, J. Simon, D. Soares
Instructors: P. Koines, J. Opoku-Edusei
Lecturers: R. Compton (Senior Lect), R. Infantino (Senior Lect), J. Jensen (Senior Lect), P. Lanford, B. Parent
Professors Emeriti: G. Anastos, E. Clark, J. Corliss, A. Haley, R. Highton, S. Pierce

Requirements for the Major

See Biological Sciences Program elsewhere in this chapter, or contact the Department of Biology Undergraduate Office.

Advising

Advising in the Biological Sciences program is mandatory. Students are assigned an advisor based on their area of specialization. The Department of Biology faculty coordinate and advise students who specialize in Physiology and Neurobiology (PHNB), and Ecology and Evolution (ECEV). Contact the Department of Biology Undergraduate Office, 405-6904, for information about advising or to schedule an appointment. For advising in other Biological Sciences Specialization areas, see the Biological Sciences Program listing in this catalog.

Honors Program

The Department of Biology Honors Program offers highly motivated and academically qualified students the opportunity to work closely with a faculty mentor on an original, independent research project. Students are required to participate in the program for at least three semesters and need not have been admitted University Honors program in order to participate. Contact the undergraduate office for more information.

Business, General

For information, see Logistics, Business and Public Policy elsewhere in Chapter 7.

CELL BIOLOGY AND MOLECULAR GENETICS (CEBG)

College of Chemical and Life Sciences
1109 Microbiology Building, 301-405-5435
www.cbmg.umd.edu
Chair: S. Wolniak (Prof)
Director: D. Straney (Assoc. Prof)
Professors: T. Cooke, S. Hutcheson, D. Mosser, A. Simon, D. Stein, H. Sze
Associate Professors: S. Benson, C. Chang, J. DeStefano, C. Delwiche, J. Dinman, N. El-Sayed, Z. Liu, K. McIver, S. Mount, W. Song, R. Stewart
Assistant Professors: V. Briken, K. Frauwirth, B. Fredericksen, L. Gao, J. Kwak, V. Lee
Instructors: A. Smith
Lecturers: E. Moctezuma, B. Quimby, P. Shields
Affiliate Professors: M. Colombini (Biol), W. Jeffery (Biol), I. Mather (ANGR), S. Salzberg (CBCB)
Affiliate Associate Professors: I. Ades (Biol), D. Perez (AGNR), L. Pick (Ent)
Affiliate Assistant Professors: I. Hamza (AGNR), M. Pop (CBCB)
Adjunct Professors: P. Hobart (USAMRIID), A. McBride (Adjunct Prof), B. Moss (NIH), D. Nuss (UMBI)), V. Vakharia (UMBI), O. White (TIGR), R. Wickner (NIH)
Adjunct Associate Professors: E. Baehrecke (UMass Med), J. Culver (UMBI), E. Freed (NCI), K. Green (NIH), L. Wu (UMBI)
Professors Emeriti: G. Bean, R. Doetsch, E. Gantt (Dist Univ Prof), F. Hetrick, S. Joseph, G. Patterson, M. Pelczar, J. Reveal, B. Roberson, R. Weiner, R. Yuan

The Major

The department participates in the teaching and advising of students in the Biological Sciences Program, specifically in the Specialization Areas of Cell Biology & Genetics (CEBG), Microbiology (MICB), and General Biology (GENB). Our courses are taught in four basic areas that represent faculty research interests and expertise including:

- Cell and Developmental Biology
- Genetics and Genomics
- Microbiology, Microbial Pathogenesis and Immunology
- Plant Biology

Requirements for the Specialization Areas
See Biological Sciences Program catalog entry for more information on the degree requirements.

Requirements for the Major

See Biological Sciences Program catalog entry for more information on the degree requirements.

Advising

Advising is mandatory. The Department in coordination with the Student Affairs Office of the College of Chemical and Life Sciences administers the advising of students in the Biological Sciences specialization areas of Microbiology, Cell Biology and Genetics, and General Biology. Advising assignments can be found by contacting the Cell Biology and Molecular Genetics Undergraduate Program Office, 1225 H.J. Patterson Hall (301-405-2766) or see the site: www.cbmg.umd.edu/undergrad/advising.com.

Undergraduate Research Experiences

Students may participate in Department hosted research experiences in faculty laboratories or laboratories at off campus locations. Please contact the Cell Biology and Molecular Genetics Undergraduate Office (301 405-2766) for more information or see the site: www.cbmg.umd.edu/undergrad/research.html

Honors Program

The Departmental Honors Program involves a long term (three semester) independent research project undertaken with a faculty advisor. Please contact the Cell Biology and Molecular Genetics Undergraduate Office for more information or see the site: www.cbmg.umd.edu/undergrad/research.html

Student Societies and Professional Organizations

All students interested in microbiology are encouraged to join the University of Maryland Student Chapter of the American Society for Microbiology. Sigma Alpha Omicron is the honors chapter of this group. The groups meet regularly on campus. Information is available through the Undergraduate Program Office.

Awards and Recognition

The P. Arne Hansen Award is awarded annually to a Departmental Honors student who has demonstrated outstanding achievement through the research experience. The Sigma Alpha Omicron Award is giving to outstanding seniors who have excelled in the areas of Microbiology, or in Cell Biology and Genetics. The Appleman-Norton Award is given to the senior who has excelled in the area of Plant Biology.

Central European, Russian and Eurasian Studies (CERE)

College of Arts and Humanities
2121 Taliaferro Hall, 301-405-4289
www.ceres.umd.edu
Director: M. Rozenblit
Professors: R. Brecht, M. David-Fox, J. Herf, J. Lampe, S. Mansbach, P. Murrell, J. Robinson, V. Tismaneanu
Associate Professors: K. Gor, D. Hitchcock, M. Isaacs (Visit Assoc Prof), J. Kaminski, M. Lekic, C. Martin, C. Schuler
Assistant Professors: E. Adler (Visit Asst Prof), K. David-Fox, E. Papazian

Admission to the Major

Admission is open to all interested students but should be approved in a meeting with the Director.

Requirements for the Major

Requirements for the CERES major include the College of Arts and Humanities's mandated completion of 45 upper-level credits. The College's foreign-language requirement will be automatically fulfilled in the process of fulfilling the CERES requirement of taking either Russian, German, or a Central/East European language (including Czech, Polish, Hungarian, Serbian and Croatian, Bulgarian, and Romanian).The language requirement may also be fulfilled by a Eurasian language (i.e., a language from a country formerly part of the Soviet Union). Those interested in fulfilling the CERES language requirement through a Central/East European or Eurasian language should consult the director upon entering the program.

Students who elect the Russian language track must complete a minimum of 24 credit hours in Russian language and literature selected from among the following courses (or their equivalents):

		Credits
RUSS101	Intensive Elementary Russian I	6
RUSS102	Intensive Elementary Russian II	6
RUSS201	Intermediate Russian I	5
RUSS202	Intermediate Russian II	5
RUSS301	Advanced Russian I	3
RUSS302	Advanced Russian II	3
RUSS303	Russian Conversation: Functional Skills	3
RUSS321	Survey of Russian Literature I	3
RUSS322	Survey of Russian Literature II	3
RUSS401	Advanced Russian Composition	3
RUSS402	Practicum in Written Russian	3
RUSS403	Russian Conversation: Advanced Skills	3
RUISS404	Practicum in Spoken Russian	3

Students interested in specializing primarily on Central/Eastern Europe may opt for the German language track, and must complete a minimum of 24 credit hours in the Department of Germanic Studies from among the following courses (or their equivalents):

		Credits
GERM103	Intensive Elementary German	4
GERM203	Intensive Intermediate German	4
GERM301	Conversation and Composition I	3
GERM302	Conversation and Composition II	3

- Also accepted will be 16 credit hours of Russian or German and the equivalent of 8 credit hours of a Central/East European language.
- Fulfilling the language requirement through a Eurasian language will be decided on a case-by-case basis in consultation with the director.
- In addition to language courses, students must complete 24 hours of CERES approved courses at the 300-level or above. These 24 hours must be taken in at least four different departments (with the School of Languages, Literatures and Cultures counting as a single department), and may include language-literature courses beyond the required 24 hours. Of the 24 hours, at least 9 hours must be in courses with substantial or specific focus on Central/East Europe *(for example, ARTH 350 or 488C, GVPT 359, 409, HIST 319, 340, 443 and other special courses offered in the CERES area with the approval of the director)* and at least 9 hours must be in those CERES courses with substantial or specific Russian/Eurasian focus *(for example, GEOG 325, GVPT 445, 451, 459A, 481, HIST 344, 424, 425, 442, SOCY 474, THET 499, and other special courses offered in the CERES area with the approval of the director).*

For a full listing of this year's CERES courses, see the website www.ceres.umd.edu, and click on "requirements."

The various cooperating departments also offer special (i.e. non-permanent) seminars and courses in the Russian, East European, and Eurasian fields. HIST 237-Russian Civilization, is recommended as a general introduction to the program but does not count toward the fulfillment of the program's requirements.

Advising

Course selection and progress toward programmatic requirements are to be discussed individually through meetings with the CERES director.

Undergraduate Research Experiences

Internships and in-country experience should be discussed individually with the Director.

CERTIFICATE PROGRAMS (UNDERGRADUATE)

Certificate Program Information and Requirements

African American Studies Certificate

College of Behavioral and Social Sciences
2169 LeFrak Hall, 301-405-1158
www.bsos.umd.edu/aasp

The African American Studies Certificate program offers the opportunity to develop a specialization in African American studies while pursuing a major in another field. Certificate students learn about the social, economic, political, and cultural history of African American people through a concentration of courses (21 credit hours). Courses taken toward the certificate also may be used to satisfy CORE requirements and electives. Undergraduates in good standing may apply for the program by contacting the academic advisor of the African American Studies Department in 2169 LeFrak Hall. Students pursuing the certificate must meet the University's general education (CORE) and department requirements. Also see the African American Studies department listing on this site.

Asian American Studies Program

Office of Undergraduate Studies
1120 Cole Student Activities Building, 301.405.0996
www.aast.umd.edu
aast@umd.edu

The Asian American Studies Program (AAST) provides students with the opportunity to study critically the experiences of Asian Americans. Through an interdisciplinary approach, students examine the histories, communities, and cultures of Asian Americans as both distinctive from and connected to the broader themes for diversity, ethnicity, race, gender and migration in the Americas. AAST offers a 15 credit-hour minor.

For more information, see Office of Undergraduate Studies in Chapter 6.

Computational Science

College of Computer, Mathematical and Physical Sciences
3103 Mathematics Building, 301-405-0924
www.amsc.umd.edu

For program requirements see Certificate in Computational Science in the section on Applied Mathematics and Scientific Computation.

East Asian Studies Certificate

College of Arts and Humanities
2101B Francis Scott Key Hall, 301-405-4309

The Undergraduate Certificate in East Asian Studies is a 24-credit course of instruction designed to provide specialized knowledge of the cultures, histories, and contemporary concerns of the peoples of China, Japan, and Korea. It will complement and enrich a student's major. The curriculum focuses on language instruction, civilization courses, and electives in several departments and programs of the university. It is designed specifically for students who wish to expand their knowledge of East Asia and demonstrate to prospective employers, the public, and graduate and professional schools a special competence and set of skills in East Asian affairs.

Upon satisfactory completion of the courses, with a grade of C or better in each course, and recommendation by the Coordinator of the Certificate Program, a certificate will be awarded. A notation of the award of the certificate will be included on the student's transcript. The student must have a bachelor's degree awarded by Maryland (must be College Park campus) previous to or simultaneously with an award of the certificate.

Certificate Requirements

CORE Courses: The student is required to take:

1. HIST 284 East Asian Civilization I
2. HIST 285 East Asian Civilization II
3. Six semester hours of introduction to one of the following East Asian languages (Chinese, Japanese, or Korean):

    CHIN 101 Elementary Chinese I
    JAPN 101 Elementary Japanese I
    KORA 101 Elementary Korean I
    KORA 102 Elementary Korean II
    KORA 211 Introductory Reading for Speakers of Korean I
    KORA 212 Introductory Reading for Speakers of Korean II

Students with language competence equivalent to these language courses are exempted from the language requirement; such students are required to complete an additional six hours of electives in East Asian courses to fulfill the 24-credit requirement for the certificate.

Electives: Students must complete at least 12 hours of electives selected from four regular approved courses on East Asia in such disciplines as: (1) anthropology, (2) art history, (3) ethnomusicology, (4) government and politics, (5) history, (6) language, linguistics, and literature, (7) plant science and landscape architecture, and (8) women's studies. Nine of the 12 hours of electives must be upper division (300-400 level courses). A maximum of three credit hours of special topics courses on East Asia will be allowed with the approval of the certificate coordinator. No more than nine credits from any one department or from the student's major may be applied toward the certificate. In addition, no more than nine credits of the courses applied toward the certificate may be transferred from other institutions. Students are asked to work with the coordinator in ensuring that the electives maintain an intercollegiate and interdisciplinary focus (at least three disciplines are recommended). Interested students should contact the Coordinator of the Certificate Program, Dr. Lindsay Yotsukura, Japanese Program, School of Languages, Literatures, and Cultures, 2106F Jimenez Hall, ly@umd.edu (website at www.ceas.umd.edu).

International Agriculture and Natural Resources

College of Agriculture and Natural Resources
0108 Symons Hall, 301-405-2078
www.agnr.umd.edu
sabrown@umd.edu

The Certificate in International Agriculture and Natural Resources is designed to enrich a student's major with a global perspective. The required courses focus on: language instruction; international aspects of the environment, agricultural production, development and sustainability, nutrition, and business; an experience abroad; and a capstone course regarding the student's travel abroad. Any student in good academic standing may participate in the certificate program.

Requirements for Certificate

The certificate requires at least 21 credits that may include courses taken toward other degree and CORE requirements. Upon successful completion of the courses, with a grade of C or better in each course and a recommendation of the Associate Dean of the College of Agriculture and Natural Resources, a certificate will be awarded. A notation of the award of the certificate will be included on the student's transcript. In order to receive the certificate, students must have completed all requirements for a bachelor's degree.

Foreign Language
6-8 credits in a foreign language

International Courses
At least 9 credits from the following list of courses, at least 3 of these courses must be in the College of Agriculture and Natural Resources for students not majoring in a program outside of the College of Agriculture and Natural Resources:

PLSC 303 International Crop Production

ENST 440 Crops, Soils, and Civilization

AREC 365 World Hunger, Population, and Food Supplies

AREC 433 Food and Agricultural Policy

BMGT 392 Introduction to International Business Management

BMGT 390 Competing on Quality in a Global Economy

BSCI 365 International Pesticide Problems and Solutions

GEOG 434 Agriculture and Rural Development

NFSC 425 International Nutrition

AREC 445 Agricultural Development, Population Growth, and the Environment

ECON 440 International Economics

GVPT 306 Global Ecopolitics

GEOG 422 Population Geography

Travel Study or Travel Abroad
Three to four credits of travel study or study abroad. Prerequisite: to have completed the foreign language course work. Prerequisite or co-requisite: six credits from the International Courses List. In order to qualify for the certificate, travel study and study abroad experiences require prior approval of Associate Dean of the College College of Agriculture and Natural Resources. For approval, travel experience must demonstrate significant learning opportunities in areas related to agriculture and natural resources and cultural immersion.

Travel Study Seminar
1 credit Travel Study Seminar. Prerequisite: completion of the travel study requirement.

This course will require student presentation of their travel experience including a paper, a poster presentation, as well as an oral presentation and discussion.

Latin American Studies Certificate

College of Arts and Humanities
0128B Holzapfel Hall, (301)405-6459
www.lasc.umd.edu
lasc@umd.edu

The multidisciplinary certificate program in Latin American Studies is open to University of Maryland, College Park undergraduates in any major who are interested in international studies and Latin America. The undergraduate Certificate in Latin American Studies will be awarded to students who have completed 21 credits with a grade of C or better in the following areas.

Requirements for Certificate

A. Core curriculum for all certificate students (12 credits)

LASC/SPAN/PORT 234	Issues in Latin American Studies I
LASC/SPAN/PORT 235	Issues in Latin American Studies II
HIST 250 or HIST 251	Latin American History I or II
LASC/SPAN/PORT/ANTH 458	Senior capstone course in Latin American Studies

B. Additional courses in Latin American Studies (9 credits)

Nine credits are additional courses that must be chosen from an approved list and from at least two different departments. At least six credits must be at the 300- or 400-level. See Latin American Studies advisor for details.

C. Foreign Language Competency

All certificate students must demonstrate their competence in either Spanish or Portuguese. Competency may be proven with a grade of C or better in an intermediate-level course (PORT 204, SPAN 203) or higher. Native speakers of Spanish or Portuguese or students with extensive experience in these languages should consult with the Latin American Studies advisor. Interested students should contact the LASC Center at lasc@umd.edu or 301-405-6459 and/or our advisor, Dr. Eyda Merediz, 2225 Jimenez Hall during her office hours posted in our web page at www.lasc.umd.edu

Lesbian, Gay, Bisexual and Transgender Studies (LGBT)

2212 Marie Mount Hall, 301-405-5428
www.lgbts.umd.edu
lgbts@umd.edu

The program in Lesbian, Gay, Bisexual and Transgender Studies (LGBT) offers an interdisciplinary undergraduate certificate and a minor designed to examine the lives, experiences, identities and representations of LGBT persons, those who are today described as having a minority sexual orientation or who are gender transgressive.

For more information, see the Office of Undergraduate Studies in Chapter 6.

Upper Division Certificate in Secondary Education

College of Education
2311 Benjamin Building, 301-405-6877
www.education.umd.edu/EDCI

See Department of Curriculum and Instruction.

Women's Studies Certificate

College of Arts and Humanities
2101 Woods Hall, 301-405-6877
www.womensstudies.umd.edu
womensstudies@umd.edu

See Women's Studies Department for faculty roster.

The Women's Studies Certificate Program consists of an integrated, interdisciplinary curriculum on women that is designed to supplement a student's major. Any student in good standing may enroll in the certificate program by declaring her/his intention to the Women's Studies Undergraduate Advisor. For additional information contact the Women's Studies office, 301-405-6827.

Requirements for Certificate

To qualify for a certificate in Women's Studies, a student will be required to earn 21 credits in Women's Studies courses, nine of which must be at the 300/400 level. No more than three credit hours of special topics courses may be counted toward the certificate. No more than nine credits which are applied toward a major may be included in the certificate program. No more than nine credit hours may be taken at institutions other than the University of Maryland. Each student must obtain a grade of C or better in each course that is to be counted toward the certificate. Of the 21 credits, courses must be distributed as follows:

1. Requirements for the Certificate

	Foundation Courses (9 credit hours)
WMST200	Introduction to Women's Studies: Women and Society, OR
WMST250	Introduction to Women's Studies: Women, Art & Culture
WMST400	Theories of Feminism
WMST488	Senior Seminar

2. Distributive Courses

	Area I: Arts and Literature (3 credit hours)
WMST241	Women Writers of French Expression in Translation (X-listed as FREN241)
WMST250	Introduction to Women's Studies: Women, Art, and Culture
WMST255	Introduction to Literature by Women (X-listed as ENGL255)
WMST275	World Literature by Women (X-listed as CMLT 275)
WMST281	Women in German Literature and Society (X-listed as GERM281)
WMST348	Literary Works by Women (x-listed as ENGL348)
WMST408	Special Topics in Literature by Women before 1800 (X-listed as ENGL 408)
WMST444	Feminist Critical Theory (X-listed as ENGL 444)
WMST448	Special Topics in Literature by Women of Color* (X-listed as ENGL448)
WMST458	Special Topics in Literature by Women after 1800 (X-listed as ENGL458)
WMST466	Feminist Perspective on Women in Art (X-listed as ARTH466)
WMST468	Feminist Cultural Studies
WMST481	Femmes Fatales and the Representation of Violence in Literature(X-listed as FREN481)
WMST496	African -American Women Filmmakers* (X-listed as THET 496)
FREN482	Gender and Ethnicity in Modern French Literature
	Area II: Historical Perspectives (3 credit hours)
WMST210	Women in America to 1880(X-listed as HIST 210)
WMST211	Women in America Since 1880 (X-listed as HIST 211)
WMST212	Women in Western Europe, 1750-present (X-listed as HIST212)
WMST320	Women in Classical Antiquity (X-listed as CLAS 320)
WMST453	Victorian Women in England, France, and the United States (X-listed as HIST 493)
WMST454	Women in Africa* (X-listed as HIST 494)
WMST455	Women in Medieval Culture and Society (X-listed as HIST495)
WMST456	Women in the Middle East*
WMST457	Changing Perceptions of Gender in the US: 1880-1935 (X-listed as HIST 433)
AASP498W	Black Women in United States History*
AMST418J	Women and Family in American Life
HIST309	Proseminar in Historical Writing: Women's History
	Area III: Social and Natural Sciences (3 credit hours)
WMST200	Introduction to Women's Studies: Women and Society
WMST313	Women and Science (X-listed as BSCI 313)
WMST324	Communication and Gender (x-listed as COMM 324)
WMST325	Sociology of Gender (X-listed as SOCY 325)
WMST326	Biology of Reproduction (X-listed as BSCI 342)
WMST336	Psychology of Women (X-listed as PSYC 366)
WMST360	Caribbean Women*
WMST410	Women in the African Diaspora*
WMST420	Asian-American Women*
WMST425	Gender Roles and Social Institutions
WMST430	Gender Issues in Families (X-listed as FMST 430)
WMST436	Legal Status of Women (X-listed as GVPT 436)
WMST452	Women and the Media (X-listed as JOUR 452)
WMST471	Women's Health (X-listed as HLTH 471)
WMST493	Jewish Women in International Perspective*
WMST494	Lesbian Communities and Difference*

AASP498F	Special Topics in Black Culture: Women and Work*
CCJS498	Special Topics in Criminology and Criminal Justice: Women and Crime
SOCY498W	Special Topics in Sociology: Women in the Military

*Fulfills Women's Studies Multi-Cultural Requirement

3. Courses in Cultural Diversity (6 credit hours)
Students will select one course for a minimum of 3 credit hours. Approved courses are noted with an asterisk in section 2, above. Courses in this category may overlap with other requirements.
4. Remaining Courses
The remaining courses may be chosen from any of the three distributive areas or from among any of the WMST courses including WMST 298 or 498: Special Topics and WMST 499: Independent Study.

Advising
To obtain more information, contact the Undergraduate Advisor, 301-405-6827, or write to the Women's Studies Department, 2101 Woods Hall, University of Maryland, College Park, MD 20742
Course Code: WMST

CHEMICAL AND BIOMOLECULAR ENGINEERING (ENCH)

A. James Clark School of Engineering
2113 Chemical and Nuclear Engineering Building, 301-405-1935
www.chbe.umd.edu
Chair: F. Joseph Schork
Professors: M. Anisimov, R. Calabrese, K. Choi, F. Schork (Prof & Chair), W. Weigand
Associate Professors: R. Adomaitis, P. Dimitrakopoulos, S. Ehrman, S. Raghavan, N. Wang, E. Zafiriou
Assistant Professors: J. Klauda (Asst Prof), G. Sriram (Asst Prof), C. Wang (Asst Prof)
Affiliate Associate Professors: M. Al-Sheikhly (Affil Assoc Prof, Prof)
Adjunct Professors: M. Klapa, J. Quackenbush, M. Ranade (Adjunct Prof), A. Yang
Professors Emeriti: J. Gentry (Prof Emeritus), S. Greer (Affiliate Prof, Prof Emerita), T. McAvoy, T. Regan, J. Sengers, T. Smith (Prof Emeritus)
Visiting Faculty: H. Hwang (Visit Assoc Prof), H. Kim (Visit Prof)

The Major

Students in the Department of Chemical and Biomolecular Engineering at the University of Maryland learn to use a combination of mathematical, physical, chemical, and biological science concepts within a rigorous engineering design framework, graduating with a unique set of skills highly valued by a wide range of employers in industry, academia, and the government. The wide breadth of this profession and the Department's unique strengths in nanotechnology and biotechnology prepare our students for outstanding careers.

Because of the wide range of ultimate applications, the chemical engineer finds interesting and diverse career opportunities in such varied fields as chemical (inorganic and organic), food processing and manufacturing, metallurgical, polymer, energy conversion, environmental engineering, petroleum (refining, production, or petrochemical), and pharmaceutical industries. Additional opportunities are presented by the research and development activities of many public and private research institutes and all government agencies. Our graduates have taken jobs with companies like DuPont, ExxonMobil, Proctor & Gamble, the Food and Drug Administration, and the Department of Defense.

On top of all the options and opportunities, chemical and biomolecular engineers have traditionally ranked at or near the top of starting salaries among all of the engineering professions!

Courses offered by this department may be found under the following acronym: ENCH

Program Objectives

- Provide students with a solid foundation in chemical engineering science fundamentals as well as a broad background in science and mathematics to equip them to enter professional and chemical engineering practice and to enter graduate study at leading universities.
- Prepare students to excel in traditional chemical engineering careers and diverse careers in areas such as biotechnology, nanotechnology, medicine, law or business.
- Produce graduates who are equipped with quantitative problem solving, teamwork, communication skills, and a strong ethical foundation that will serve them throughout their careers.

Program Learning Outcomes

Students are expected to fully engage with the curriculum and the opportunities presented for learning and research. Having completed the degree program, students should have acquired the following knowledge and skills:

- An ability to apply knowledge of chemical engineering fundamentals to identify and solve chemical engineering problems.
- An ability to apply mathematics relevant to engineering and the physical and chemical sciences to identify and solve technical problems.
- A broad knowledge necessary to understand the impact of engineering solutions in a global and societal context.
- An ability to perform step-by-step design of engineered systems and chemical processes.
- An ability to design and conduct experiments, as well as to analyze and interpret data.
- An awareness of safety and environmental issues as an integral part of the chemical engineering profession.
- Skills necessary for employment in a variety of positions in industry or government or for continued study in graduate or professional schools.

- An understanding of current technological issues related to chemical engineering.

Admission to the Major

All Chemical Engineering majors must meet admission, progress, and retention standards of the Clark School of Engineering.

Students who wish to study at the Clark School apply for admission to the University of Maryland; there is no separate application for engineering. When filling out the university application, you may choose chemical and biomolecular engineering as your intended major.

Requirements for the Major

The curriculum is composed of:

- The required CORE (general education) requirements of College Park.
- The required Engineering core of 37 credits of ENCH courses which include:

ENCH215	Chemical Engineering Analysis	3
ENCH250	Computer Methods in Chemical Engineering	3
ENCH300	Chemical Process Thermodynamics	3
ENCH333	Chemical Engineering Seminar	1
ENCH400	Chemical Engineering Thermodynamics	3
ENCH422	Transport Processes I	3
ENCH424	Transport Processes III	3
ENCH426	Transport Processes III	3
ENCH437	Chemical Engineering Laboratory	3
ENCH440	Chemical Engineering Kinetics	3
ENCH442	Chemical Engineering Systems Analysis	3
ENCH444	Process Engineering Economics & Design I	3
ENCH446	Process Engineering Economics & Design II	3

- Mathematics - four semesters
- Physics - three semester
- Chemistry (lecture/laboratory): one freshmen Chemistry, two Organic Chemistry, two Physical Chemistry

Minimum Degree Credits: 128 credits and fulfillment of all Departmental, College, and University requirements with a cumulative grade point average of 2.0

Students must consult with an advisor on selection of appropriate courses for their particular course of study.

Technical Electives Guidelines

Twelve credits of ENCH technical electives are required. It is recommended that they be taken during the senior year.
The senior ENCH technical electives are 400-level chemical engineering courses, including ENCH468x, and a limited number of approved 400-level technical courses from outside chemical engineering. Students should select electives with the help of an academic advisor. Normally at least three of the four technical electives should be ENCH4xx; the fourth elective may be chosen from ENCH or from an approved list of non-ENCH technical courses. Business or non-technical courses are normally not approved.

One of the electives must have significant mathematical content, and one of the electives must have significant biological content. Selection of the electives with significant mathematical or biological content is subject to the above constraint that at least three of the four electives are normally ENCH courses.

Upon the approval of the academic advisor and written permission of the Department, a limited number of substitutions may be permitted. Substitutes, including ENCH468 Research (1-3 credits), must fit into an overall plan of study emphasis and ensure that the plan fulfills the accreditation design requirements. Students may elect to specialize in a specific area such as Biological Engineering or Nanotechnology and Macromolecular Science; or they may sample a variety of elective courses. Upon graduation, those who specialize in a particular technical area will receive a letter in recognition of their accomplishment from the Chair and the Director of Undergraduate Studies of the Chemical Engineering Department. A list of technical electives are posted at: www.chbe.umd.edu/undergrad.

Other Requirements for the Major

Sample Undergraduate Program, Chemical and Biomolecular Engineering

Freshman Year

Course	Title	Fall Credits	Spring Credits
ENES 100	Introduction to Engineering Design *(**can be taken first or second semester)*	3**	-
ENES 102	Statics *(**can be taken first or second semester)*	-	3**
MATH 140	Calculus I	4	-
MATH 141	Calculus II	-	4
CHEM 135	Chemistry for Engineers, Lecture	3	-
CHEM 136	Chemistry for Engineers, Lab	1	-
ENGL 101	Introduction to Writing	3	-
PHYS 161	General Physics I	-	3
CORE Program Requirements		-	6

Total		**14**	**16**

Sophomore Year

		Fall Credits	Spring Credits
MATH 241	Calculus III	4	-
MATH 246	Differential Equations	-	3
PHYS 260	General Physics II	3	-
PHYS 261	General Physics II lab	1	-
PHYS 270	General Physics III	-	3
PHYS 271	General Physics III lab	-	1
CHEM 23	Organic Chemistry I	4	-
CHEM 241	Organic Chemistry II	-	4
ENCH 215	Chemical Engineering Analysis	3	-
ENCH 250	Computer Methods in Chemical Engineering	-	3
ENCH 300	Chemical Process Thermodynamics (Thermo I)	-	3
CORE Program Requirements		3	-
Total		**18**	**17**

Junior Year

		Fall Credits	Spring Credits
ENMA 300	Introduction to Materials and Their Applications (formerly ENES 230)	3	-
CHEM 482	Physical Chemistry II	-	3
CHEM 483	Physical Chemistry Laboratory I	2	-
ENCH 400	Chemical Engineering Thermodynamics (Thermo II)	3	-
ENCH 333	Seminar	-	1
ENCH 422	Transport Processes I	3	-
ENCH 424	Transport Processes II	-	3
ENCH 426	Transport Processes III	3	-
ENCH 440	Chemical Engineering Kinetics	-	3
ENCH 442	Chemical Engineering Systems Analysis	-	3
ENGL 393	Technical Writing	3	-
CORE Program Requirements		-	3
Total		**17**	**16**

Senior Year

	Fall Credits	Spring Credits
ENCH 437 Chemical Engineering Lab	3	-
ENCH 444 Process Engineering Economics & Design I	3	-
ENCH 446 Process Engineering Economics & Design II	-	3
ENCH Technical Electives	6	6
CORE Program Requirements	3	6
Total	**15**	**15**

Advising

All students choosing Chemical Engineering as their primary field must see an undergraduate advisor each semester. Appointments for advising can be made at 2113 Chemical and Nuclear Engineering Building, 301-405-1935.

Undergraduate Research Experiences

A unique aspect of the Department's undergraduate program is its high level of student participation in cutting-edge research. Approximately half of our students graduate with significant lab experience and most find it to be one of the high points of their undergraduate education.

Co-op Programs

The Chemical Engineering program works within the Clark School of Engineering Cooperative Engineering Education Program. For information on this program consult the Clark School of Engineering entry of this catalog or call 301-405-3863.

Honors Program

The A. James Clark School of Engineering hosts a chapter of the Omega Chi Epsilon National Honor Society for chemical engineering, as well as a chapter of the engineering honor society Tau Beta Pi.

Student Societies and Professional Organizations

Students operate a campus student chapter of the professional organization, the American Institute of Chemical Engineers. Omega Chi Episilon is the honorary Chemical Engineering Society

Scholarships and Financial Assistance

Financial aid based upon need is available through the Office of Student Financial Aid. A number of scholarships are available through the A. James Clark School of Engineering. The department offers opportunities for research and other part-time employment.

Awards and Recognition

Annual awards are given to recognize scholarship and outstanding service to the Department, College and University. These awards include the David Arthur Berman Memorial Award, the Russell Barch Memorial Award, and several American Institute of Chemical Engineers (AICHE) awards. AIChE awards are given to the junior with the highest cumulative GPA as well as to the outstanding junior and outstanding senior in Chemical Engineering.

CHEMISTRY AND BIOCHEMISTRY (CHEM, BCHM)

College of Chemical and Life Sciences
0107H Chemistry Building, 301-405-1788
www.chem.umd.edu
Student Information: 2102 Chem Bldg; 301-405-1791
Chair: M. Doyle (Professor)
Professors: M. Alexander, N. Allewell, H. Ammon, D. Beckett, N. Blough, J. Davis, P. DeShong, B. Eichhorn, D. Falvey, C. Fenselau, J. Fourkas, S. Greer, G. Lorimer, A. Mignerey, J. Ondov, J. Reutt-Robey, S. Rokita, L. Sita, D. Thirumalai, J. Tossell, W. Walters, J. Weeks, M. Zachariah
Associate Professors: D. Fushman, L. Isaacs, C. Jarzynski, D. Julin, J. Kahn, C. Lee, A. Mullin, V. Munoz, R. Walker
Assistant Professors: T. Cropp, B. Gerratana, D. Kosov, N. LaRonde-LeBlanc, S. Lee, H. Sintim, V. Tugarinov, A. Vedernikov
Instructors: S. Ebrahimian
Lecturers: M. Brooks, B. Dixon, L. Friedman, J. Klassen, M. McDermott-Jones, M. Montague-Smith, D. Steffek
Affiliate Professors: M. Anisimov, J. Dinman, S. Sukharev, E. Williams
Adjunct Professors: F. Khachik, E. Mazzola
Professors Emeriti: J. Bellama, A. Boyd, H. DeVoe, D. Freeman, S. Grim, J. Hansen, K. Henery-Logan, C. Holmlund, J. Huheey, R. Jaquith, B. Jarvis, F. Kasler, R. Khanna, G. Miller, J. Moore, R. Munn, T. O'Haver, J. Stewart

Requirements for the Major

Note: The lower-level courses offered by the Department of Chemistry and Biochemistry changed starting in the Fall 2005 semester. The lower-level requirements for chemistry and biochemistry majors are reflected in the requirements listed below. For details, contact the Undergraduate Office or visit the undergraduate section of the Department's website

Chemistry Majors

All required chemistry and biochemistry courses must be passed with a minimum grade of C. Required supporting courses, including BSCI 105, must be passed with a 2.0 grade point average.

		Credits	
	Required Courses		
CHEM146/147	Principles of General Chemistry / Lab	4	
CHEM237	Principles of Organic Chemistry I	4	
CHEM247	Principles of Organic Chemistry II	4	
CHEM276/277	General Chemistry and Energetics(Majors) / Lab	5	
CHEM395	Professional Issues in Chemistry and Biochemistry	1	
CHEM425	Instrumental Methods of Analysis	4	
CHEM481/483	Physical Chemistry I / Lab	5	
ENGL101	Introduction to Writing	3	
UNIV100	The Student in the University	1	
	Supporting Courses		
BSCI105	Principles of Biology I	4	
PHYS141/142	Principles of Physics	8	
MATH140	Calculus I	4	
MATH141	Calculus II	4	
	NOTE: *All majors and potential majors are encouraged to take MATH241-Calculus III (4) prior to beginning Physical Chemistry.*		
	Departmental Requirements		
	Lower level courses	16	
	Supporting courses	20	
	Upper level courses	24	
	must include:		
CHEM401	Inorganic Chemistry		3
CHEM482/484	Physical Chemistry II / Lab		5
ELECT UL	approved upper level CHEM/BCHM courses		6

In order to meet requirements for a degree approved by the American Chemical Society (ACS), students must complete a specific set of courses in addition to this curriculum. Information about ACS certification can be obtained in the undergraduate office.

Biochemistry Majors

All required chemistry, biochemistry, and upper-level biological sciences courses must be passed with a minimum grade of C. Required supporting courses, including BSCI 105, must be passed with a 2.0 grade point average.

		Credits	
	Required Courses		
CHEM146/147	Principles of General Chemistry / Lab	4	
CHEM237	Principles of Organic Chemistry I	4	
CHEM247	Principles of Organic Chemistry II	4	
CHEM276/277	General Chemistry and Energetics - Majors / Lab	5	
CHEM395	Professional Issues in Chemistry and Biochemistry	1	
CHEM425	Instrumental Methods of Analysis	4	
CHEM481/483	Physical Chemistry I / Lab	5	
ENGL101	Introduction to Writing	3	
UNIV100	The Student in the University	1	
	Supporting Courses		
BSCI105	Principles of Biology I	4	
PHYS141/142	Principles of Physics	8	
MATH140	Calculus I	4	
MATH141	Calculus II	4	
	NOTE: *All majors and potential majors are encouraged to take MATH241-Calculus III (4) prior to beginning Physical Chemistry.*		
	Departmental Requirements		
	Lower level courses	16	
	Supporting courses	20	
	Upper level courses	25	
	must include:		
BCHM461	Biochemistry I		3
BCHM462	Biochemistry II		3
BCHM464	Biochemistry Laboratory		3
BCHM465	Biochemistry III		3
BCHM485	Physical Biochemistry		3
	approved biological science courses		6

* Specific information about course requirements can be obtained in the undergraduate office.

* A student who enrolls in the chemistry or biochemistry program at any time following the first semester of study typically will enter the non-majors introductory sequence (CHEM 131/132, 231/232, 241/242 and 271/272; CHEM 132, 232, 242 and 272 are co-requisite laboratory courses) which fulfills the lower-level departmental requirements. Transfer students who wish to pursue chemistry or biochemistry majors will have their previous chemistry course work carefully evaluated for placement in the appropriate courses. Starting in 2007, transfer students with four or more semesters of general and organic chemistry credit must take, at a minimum, the CHEM 272 laboratory course to complete the introductory sequence.

Advising

There is mandatory advising for all Chemical and Life Science majors each semester. Advising appointments can be made by contacting the undergraduate office, 2102 Chemistry Building, 301-405-1791

Honors Program

Students with a GPA of 3.0 or better who have completed two semesters of CHEM 399 (Introduction to Chemical Research) have an opportunity to sign up for CHEM 398 (Honors Research) in their senior year and be considered for departmental honors. After successful completion of a senior honors thesis and seminar, graduation with honors or with high honors in chemistry or biochemistry can be attained

Student Societies and Professional Organizations

Alpha Chi Sigma Chemistry Fraternity is a professional fraternity which recruits men and women students from chemistry, biochemistry, and related science majors during each fall and spring semester. The fraternity holds weekly meetings and provides tutoring for students in lower-level chemistry courses. The office is in Room 2106A Chemistry Building. Dr. Lyle Isaacs (3341 Chemistry Building, 301-405-1884)) is the faculty advisor.

The student affiliate program of the American Chemical Society (SA-ACS) is designed to introduce students in chemistry, biochemistry and related fields to a variety of professional activities. Student affiliates will gain skills and make contacts aimed at launching a successful career in science. Activities include networking and meeting with professionals, attending national meetings, and participating in public outreach programs. Affiliates also receive subscriptions to Chemical & Engineering News, the undergraduate career magazine, *in Chemistry*, as well as gaining on-line access to announcements regarding job and intern opportunities. The student affiliate office is located in Room 2112A of the Chemistry Building.

Scholarships and Financial Assistance

Two scholarships are available for majors: the Isidore and Annie Adler Scholarship of $500 to an outstanding major with financial need and the Leidy Foundation Scholarships of $600 to two outstanding junior majors. No application is necessary, as all majors are automatically reviewed by the Awards Committee.

Chinese (CHIN)

College of Arts and Humanities
2106 Jiménez Hall, 301- 405-4239
www.chinese.umd.edu
:

The Major

The Chinese major provides the training and cultural background needed for entering East Asia-related careers in such fields as higher education, the arts, business, government, international relations, agriculture, or the media. Students may also consider a double major in Chinese and another discipline, such as business, government and politics, economics, or journalism.Chinese students have the option of applying to live in St. Mary's Hall (Language House) and participating in a study abroad program.

Requirements for the Major

As of Fall, 2007, the Chinese major requires 39 credits: 18 of language, 3 of CHIN207, and 18 of non-language electives, as described below.No grade lower than C (2.0) may be used toward the major.

I. Language requirements: 18 credits of Chinese language at 200-level or above. Student placing into the program at higher levels should reach at least the level of CHIN302 or CHIN306 but may substitute non-language courses on China-related subjects for some of these 18 credits. (The final decision on what substitute courses may be used for the major rests with the Chinese Program and the Chinese Advisor.) Language courses accepted for the major include:

- CHIN201/202 Intermediate Spoken Chinese I and Intermediate Written Chinese I (must be taken together and passed together)
- CHIN203/204 Intermediate Spoken Chinese II and Intermediate Written Chinese II (must be taken together and passed together)
- CHIN301 Advanced Chinese I
- CHIN302 Advanced Chinese II
- CHIN305 Life in China through TV Plays I
- CHIN306 Life in China through TV Plays II
- CHIN401 Readings in Modern Chinese I
- CHIN402 Readings in Modern Chinese II
- CHIN418A Special Topics in Contemporary Chinese Fiction and Film: Sex and the City: Literary and Filmic Representations of Women (taught in Chinese)
- CHIN418B Special Topics in Contemporary Chinese Fiction and Film: The Representation of Youth (taught in Chinese)
- CHIN441 Traditional Chinese Fiction (taught in Chinese)
- CHIN442 Modern Chinese Fiction (taught in Chinese)

II. Linguistic Resources for Students of Chinese: 3 credits

CHIN207 (3 credits). This course is intended primarily for students at second year level. The goal is to guide students into becoming more independent and effective learners of the language.

If the student is already at the third year level or above, a 3-credit substitute can be arranged with the approval of the advisor. See "Non-language Requirements", below, for a list of some acceptable courses

III. Literature. 3 credits of Chinese literature at 300 level or above. Courses accepted include:

- CHIN314 Chinese Fiction and Drama in Translation
- CHIN315 Modern Chinese Literature in Translation
- CHIN316 Traditional Chinese Values
- CHIN418A Special Topics in Contemporary Chinese Fiction and Film: Sex and the City: Literary and Filmic Representations of Women
- CHIN418B 3 Special Topics in Contemporary Chinese Fiction and Film: The Representation of Youth
- CHIN442 Modern Chinese Fiction

IV. Linguistics. 3 credits of Chinese linguistics at 300 level or above. Courses accepted include:

- CHIN421 Sounds and Transcriptions of Mandarin Chinese
- CHIN422 Advanced Chinese Grammar
- CHIN423 Chinese Historical Phonology
- CHIN424 Linguistics of the Chinese Writing System
- CHIN428 Selected Topics in Chinese Linguistics
- EALL300 The Languages of East Asia

V. History/Civilization. 6 credits of Chinese history/civilization offered by other departments. Courses accepted include, but are not limited to:

- EALL310 Asian Culture and the Sinosphere
- HIST284 East Asian Civilization I
- HIST285 East Asian Civilization II
- HIST480 History of Traditional China
- HIST481 A History of Modern China

"Special Topics" and "Colloquium" courses (those with variable numbers, ending in 8 or 9 and followed by a letter) may be acceptable but only depending on the actual title and content of the course at the time it is offered. The final say on whether such courses are acceptable for a particular student's major is in the hands of the Chinese Program and the Chinese Advisor.

Electives. 6 credits of electives at 300 level or above, subject to the advisor's approval. In addition to all the specific courses listed "Non-language Requirements", above, language courses and independent study may also be used toward this requirement.

Civil and Environmental Engineering (ENCE)

A. James Clark School of Engineering
1173 Engineering Classroom Building, 301-405-7768
www.cee.umd.edu
Chair: A. Haghani
Professors: M. Aggour, A. Amde, B. Ayyub, G. Baecher, G. Chang, A. Davis, D. Goodings, O. Hao, R. McCuen, P. Schonfeld, M. Skibniewski, A. Torrents
Associate Professors: M. Austin, A. Aydilek, K. Brubaker, P. Chang, S. Gabriel, D. Goulias, D. Lovell, E. Miller-Hooks, C. Schwartz, E. Seagren, Y. Zhang

Assistant Professors: C. Cirillo, Q. Cui, L. Zhang (Asst Prof)
Affiliate Professors: J. Gansler, B. Golden, E. Kalnay, M. Ruth
Affiliate Assistant Professors: K. Clifton
Professors Emeriti: P. Albrecht, F. Birkner, J. Colville, B. Donaldson, R. Ragan, D. Schelling, Y. Sternberg, D. Vannoy, M. Witczak

Program Objectives

The mission of the Department is threefold:

1. Provide a high quality, challenging education that encompasses breadth and depth; and prepare graduates to be proficient in both analysis and synthesis facets of civil engineering design;

2. Maintain a strong research program that is recognized for excellence in major areas of civil and environmental engineering;

3. Provide service to the University, the civil engineering profession, and the community at large.

The Department provides an educational program of basic and specialized engineering knowledge necessary for its graduates to be proficient in recognized specialties of civil engineering. This preparation provides graduates with the tools needed for successful practice in the period following graduation. In addition to general and technical education, the educational program stresses professional and ethical responsibilities, an awareness of societal issues, and the need for life-long learning.

The Department contributes to the advancement of knowledge through research on important engineering problems. The research results are communicated through recognized channels of knowledge dissemination.

The Department serves the needs of the community by emphasizing global and societal issues. The Department addresses these issues through University and professional channels and contributes to their solutions.

The Department, building upon the above mission, established three program educational objectives:

1. Prepare our graduates for competent professional practice within civil engineering related industries of Maryland and the mid-Atlantic region.

2. Create a cadre of graduates with the breadth of interests and skills to take on challenging new areas of engineering practice.

3. Instill in our graduates a recognition of the importance of continuing professional development.

Program Learning Outcomes

The Department has established twenty program outcomes, which include ABET's (a) through (k) criteria, plus four additional American Society of Civil Engineers (ASCE) outcomes. The outcomes are listed below, together with Department-specific interpretations, following ASCE.

1. An ability to apply knowledge of mathematics. A technical core of knowledge and breadth of coverage in mathematics, science, and civil engineering, including the fundamentals of several recognized major CE areas: mathematics through differential equations, probability and statistics.

2. An ability to apply knowledge of basic science. Mastery of coursework in: calculus-based physics, biology*, chemistry, ecology*, and geology/geomorphology.

3. An ability to apply knowledge of engineering principles. Mastery of coursework in: engineering economics, mechanics, material properties, systems, and geo-spatial representation.

4. An ability to use computers to solve engineering problems. Mastery of coursework in information technology.

5. An ability to identify, formulate, and solve engineering problems. The ability to assess situations in order to identify engineering problems, formulate alternatives, and recommend feasible solutions.

6. An ability to design and conduct experiments. In at least one of the major recognized CE areas, should be able to design and conduct field and laboratory studies, gather data, create numerical and other models, and then analyze and interpret the results (e.g., traffic, geotechnical, and water quality investigations).

7. An ability to analyze and interpret data. (See #6).

8. An ability to design a component, system or process to meet desired needs. Critical design methodology and process elements include problem definition, scope, analysis, risk assessment, creativity, synthesizing alternatives, iteration, codes, safety, security and constructability, sustainability, and multiple objectives and various perspectives. Other important design or design procurement elements are bidding versus qualifications-based selection; estimating engineering costs; interaction between planning, design and construction; owner-engineer relationships; and life-cycle assessment. Understanding large-scale systems is important, including the need to integrate information, organizations, people, processes, and technology. Design experiences should be integrated throughout the professional component of the curriculum.

9. An ability to use the techniques, skills, and tools of modern engineering. This includes the role and use of appropriate information technology, contemporary analysis and design methods, and applicable design codes and standards as practical problem-solving tools to complement knowledge of fundamental concepts. Also included is the ability to select the appropriate tools for solving different types and levels of problems.

10. An ability to write effectively. Effective communication includes listening, observing, reading, speaking, and writing and requires understanding of the fundamentals of interacting effectively with technical and non-technical or lay individuals and audiences in a variety of settings. Our graduates need to be versatile with mathematics, graphics, the worldwide web and other communication tools.

11. An ability to speak effectively. See #10.

12. An ability to function effectively as part of a team. Be able to: lead a design or other team as well as participate as a member of a team;

demonstrate an understanding of team formation and evolution, personality profiles, team dynamics, collaboration among diverse disciplines, problem solving, and time management; and be able to foster and integrate diversity of perspectives, knowledge and experience.

13. An understanding of professional and ethical responsibility. Demonstrate an understanding of and a commitment to practice according to the seven Fundamental Canons of Ethics and the associated Guidelines to Practice Under the Fundamental Canons of Ethics.

14. A knowledge of contemporary issues in engineering. Should appreciate the relationship of engineering to critical contemporary issues such as multicultural globalization of engineering practice; raising the quality of life around the globe; the growing diversity of society; and the technical, environmental, societal, political, legal, aesthetic, economic, and financial implications of engineering projects.

15. An understanding of the impact of engineering solutions in a global and societal context. Need to appreciate, from historical and contemporary perspectives, culture, human and organizational behavior, aesthetics and ecology and their impacts on society. Includes history and heritage of the CE profession.

16. An awareness of the need to continually upgrade ones technical knowledge base and skills. Life-long learning mechanisms available for personal and professional development include additional formal education, continuing education, professional practice experience, active involvement in professional societies, community service, coaching, mentoring, and other learning and growth activities. Personal and professional development can include developing understanding of and competence in goal setting, personal time management, communication, delegation, personality types, networking, leadership, the socio-political process, and effecting change. Professional development can, in addition to the preceding, include career management, increasing discipline knowledge, understanding business fundamentals, contributing to the profession, considering self-employment, achieving licensure and specialty certification, and additional graduate studies.

17. An ability to apply knowledge in a specialized area related to civil engineering. For a professional civil engineer, specialized technical coursework (or the equivalent) is necessary. Examples of specialized technical areas include environmental engineering, structural engineering, construction engineering and management, public works management, transportation engineering and water resources management. Civil engineering specializations in non-traditional, boundary, or emerging fields such as ecological engineering and nanotechnology are encouraged.

18. An understanding of the elements of project management, construction, and asset management. Efforts of the professional civil engineer often lead, in the context of projects, to construction of structures, facilities and systems that, in turn, must be operated and maintained. Project management essentials include project manager responsibilities, defining and meeting client requirements, risk assessment and management, stakeholder identification and involvement, contract negotiation, project work plans, scope and deliverables, budget and schedule preparation and monitoring, interaction among engineering and other disciplines, quality assurance and quality control, and dispute resolution processes. Important construction elements are owner-engineer-contractor relationships; project delivery systems (e.g., design-bid-build, design-build); estimating construction costs; bidding by contractors; labor and labor management issues; and construction processes, methods, systems, equipment, planning, scheduling, safety, cost analysis and cost control. Asset management seeks effective and efficient long-term ownership of capital facilities via systematic acquisition, operation, maintenance, preservation, replacement, and disposition. Goals include optimizing life-cycle performance, minimizing life-cycle costs, and achieving maximum stakeholder benefit. Tools and techniques include design innovations, new construction technologies, materials improvements, geo-mapping, database management, value assessment, performance models, web-based communication, and cost accounting. Including asset management recognizes that civil engineers, during their careers, are likely to be involved with some aspect of capital facilities management.

19. An understanding of business and public policy and administration fundamentals. The professional civil engineer typically functions within both the public and private sectors that requires at least an understanding of business, public policy, and public administration fundamentals. Important business fundamentals topics as typically applied in the private, government and non-profit sectors include legal forms of ownership, organizational structure and design, income statements, balance sheets, decision (engineering) economics, finance, marketing and sales, billable time, overhead, and profit. Essential public policy and administration fundamentals include the political process, public policy, laws and regulations, funding mechanisms, public education and involvement, government-business interaction, and the public service responsibility of professionals.

20. An understanding of the role of the leader and leadership principles and attitudes. Leading, in the private and public arena -- which differs from and complements managing -- requires broad motivation, direction, and communication knowledge and skills. Attitudes generally accepted as being conducive to leadership include commitment, confidence, curiosity, entrepreneurship, high expectations, honesty, integrity, judgment, persistence, positiveness, and sensitivity. Desirable behaviors of leaders, which can be taught and learned, include earning trust, trusting others, formulating and articulating vision, communication, rational thinking, openness, consistency, commitment to organizational values, and discretion with sensitive information.

* Increased exposure to or emphasis on biological systems, ecology, sustainability, nanotechnology, and information technology is expected to occur in the 21st century.

Admission to the Major

See the entrance requirements for the A. James Clark School of Engineering in the Colleges and Schools section of this site.

Requirements for the Major

The Department offers a program of study leading to an ABET-accredited Bachelor of Science in Civil Engineering (BSCE) degree. Each student specializes in one of three tracks: Infrastructure Engineering (Structural and Geotechnical), Environmental and Water Resources Engineering, or Transportation Systems and Project Management. A total of 122 credit hours (123 for the Environmental and Water Resources Track) are required for a BSCE degree with emphasis in basic science (mathematics, chemistry, and physics), engineering science (mechanics of materials, statics, and dynamics), basic civil and environmental engineering courses; required courses in the selected track; technical electives; and a senior capstone design course. The curriculum provides a sensible blend of required courses and electives, permitting students to pursue their interests without the risk of overspecialization.

		Credits	**Credits**
	Freshman Year ***(All Civil & Environmental Engineering)***	**First Sem**	**Second Sem**
MATH140	Calculus I	4	
MATH141	Calculus II		4
CHEM135	General Chemistry for Engineers	3	
ENES100	Introduction to Engineering Design *(**can be taken first or second semester)*	**3	
ENES102	Statics *(**can be taken first or second semester)*		**3
ENGL101	Introduction to Writing	3	

PHYS161	General Physics		3
ENCE100	Introduction to Civil & Environmental Engineering	1	
CORE	CORE Program Requirements		6
	Total	**14**	**16**

	Sophomore Year ***(All Civil & Environmental Engineering)***	**Credits First Sem**	**Credits Second Sem**
MATH241	Calculus III	4	
MATH246	Differential Equations for Scientists and Engineers		3
PHYS260/261	General Physics II with Lab	4	
ENES220	Mechanics of Materials	3	
ENCE200	Engineering Information Processing I	3	
ENCE201	Engineering Information Processing II		3
ENCE215	Applied Engineering Science	3	
ENCE305	Fundamentals of Engineering Fluids		3
CORE	CORE Program Requirements		6
	Total	**17**	**15**

	Junior Year	**Credits First Sem**	**Credits Second Sem**
	Infrastructure Engineering Track		
ENGL393	Technical Writing		3
ENES221	Dynamics	3	
ENCE300	Fundamentals of Engineering Materials	3	
ENCE301	Geo-Metrics and GIS in Civil Engineering	3	
ENCE302	Probability and Statistics for Civil & Environmental Engineers		3
ENCE340	Fundamentals of Geotechnical Engineering		3
ENCE353	Introduction to Structural Analysis	3	
ENCE320	Engineering Project Management		3
ENCE	Electives*	3	
CORE	CORE Program Requirements		3
	Total	**15**	**15**
	Transportation Systems & Engineering Management Track		
ENGL393	Technical Writing		3
ENCE300	Fundamentals of Engineering Materials	3	
ENCE301	Geo-Metrics and GIS in Civil Engineering	3	
ENCE302	Probability and Statistics for Civil & Environmental Engineers		3
ENCE320	Engineering Project Management	3	
ENCE360	Analysis of Civil Engineering Systems		3
ENCE370	Introduction to Transportation Engineering & Planning		
ENCE472	Transportation Engineering		3
ENCE	Electives*	3	
CORE	CORE Program Requirements		3
	Total	**15**	**15**
	Environmental & Water Resources Engineering Track		
ENGL393	Technical Writing		3
BSCI105	Principles of Biology I	4	
ENCE300	Fundamentals of Engineering Materials		3
ENCE301	Geo-Metrics and GIS in Civil Engineering	3	
ENCE302	Probability and Statistics for Civil & Environmental Engineers	3	
ENCE310	Introduction to Environmental Engineering		3
ENCE402	Simulation and Design of Experiments for Engineers		3
ENCE431	Hydrologic Engineering		3
ENCE	Electives*	3	
CORE	CORE Program Requirements	3	
	Total	**16**	**15**

	Senior Year	**Credits First Sem**	**Credits Second Sem**
	Infrastructure Engineering Track		

ENCE444	Laboratory Characterization of Geomaterials		3
ENCE453	Computer-Aided Structural Analysis	3	
ENCE454	Design of Concrete Structures	3	
ENCE441	Foundation Design	3	
ENCE466	Design of Civil Engineering Systems		3
ENCE	Electives *	3	6
CORE	CORE Program Requirements	3	3
	Total	**15**	**15**
	Transportation Systems & Engineering Management Track		
ENCE402	Simulation and Design of Experiments for Engineers		3
ENCE422	Project Cost Accounting & Economics		3
ENCE423	Project Planning, Scheduling & Control	3	
ENCE470	Highway Engineering	3	
ENCE466	Design of Civil Engineering Systems		3
ENCE	Electives*	6	3
CORE	CORE Program Requirements	3	3
	Total	**15**	**15**
	Environmental and Water Resources Engineering Track		
ENCE411	Environmental Engineering Science	3	
ENCE422	Project Cost Accounting & Economics		3
ENCE412	Environmental Engineering Unit Operations		3
ENCE432	Ground Water Hydrology	3	
ENCE466+	Design of Civil Engineering Systems		3
ENCE	Electives*	6	3
CORE	CORE Program Requirements	3	3
	Total	**15**	**15**

Minimum Degree Requirements: 122 credits (123 for the Environmental and Water Resources Engineering Track) and the fulfillment of all departmental, school, and University requirements with a cumulative grade point average of at least 2.0. Additional semester credits will be involved to the extent that courses carrying more than three credits are selected.

+ENCE 466, Design of Civil Engineering Systems, may only be taken in the semester in which the student graduates.

***ENCE electives are to be selected as follows:**
Two electives: one from each of the two tracks in which the student is not specializing; each must be a 300 or 400 level class chosen from among approved courses from that track.

The remaining electives: Any 300 or 400 level ENCE class not required for the students chosen track; other senior level mathematics, science, and engineering courses, with the approval of the Department.

Advising

Students majoring in civil and environmental engineering are advised by Department faculty and staff, who assist in course selection and scheduling until the semester in which the student completes the basic requirements common to all tracks. At that point, students will be directed to the staff/ faculty member who serves as specialty advisor for their track. For advising, contact the Department office, 301-405-7768.

Undergraduate Research Experiences

Department faculty frequently have research opportunities for undergraduate students. Students are encouraged to contact faculty members whose research specialties are of interest.

Fieldwork Opportunities

Several excellent co-op opportunities are available for Civil and Environmental Engineering students. See the A. James Clark School of Engineering entry in chapter 6 of this catalog for a full description of the Engineering co-op program, or contact Ms. Heidi Sauber, 301-405-3863.

Honors Program

See A. James Clark School of Engineering Honors Program.

Student Societies and Professional Organizations

- American Society of Civil Engineers
- Chi Epsilon Civil Engineering Honor Society (by invitation)

Scholarships and Financial Assistance

The Department of Civil and Environmental Engineering awards a number of academic scholarships. These awards are designated primarily for junior and senior students. A department committee evaluates applications each year. See theSchool of Engineering web site for information and application instructions.

Awards and Recognition

The Department of Civil Engineering offers the following awards: 1) The Civil Engineering Outstanding Senior Award; 2) The ASCE Outstanding Senior Award; 3) The Woodward-Clyde Consultants Award; 4) The Bechtel Award; 5) The Chi Epsilon Outstanding Senior Award; 6) The Ben Dyer Award; 7) The ASCE Maryland

Section Award; 8) The Robert L. Morris Award for Environmental Leadership; and 9) The Department Chairman's Award.

Classics (CLAS)

College of Arts and Humanities
2407 Marie Mount Hall, 301-405-2013
www.classics.umd.edu
hlee6@umd.edu (Chair) or shr@umd.edu (UG advisor)
Chair: H. Lee
Professors: L. Doherty, J. Hallett (Distinguished Scholar-Teacher)
Associate Professors: S. Rutledge (Undergraduate Advisor), G. Staley, E. Stehle
Lecturers: M. Pittas-Herschbach, K. Tuite
Affiliate Professors: J. Burton
Affiliate Associate Professors: J. Scholten

The Major

Courses offered by this department may be found under the following acronym(s): CLAS, LATN, GREK.

Classics is the study of ancient Greek and Roman culture in all its aspects. Greek and Roman culture are the foundations of western culture - its literature, ideas, art, politics, and conceptions of the individual. Greek myth is still a shared fund of images and narratives that expresses human experience. Latin is the major source of English vocabulary, and Greek provides technical language in many fields. Classics explores all of these aspects through over fifteen hundred years of history. It helps us understand the relationship of western culture to other cultural systems and place ourselves better in the world.

Classics is an intellectually rich and versatile liberal arts major which teaches "core skills", including effective communication, critical thinking, and an appreciation of diversity. Because it is so interdisciplinary and holistic, a student of classics gets a three-dimensional view of cultural history and the literary works that are still major forces in the contemporary scene. Studying Athenian democracy and the Roman Republic sharpens understanding of competing philosophical and political ideas. Studying Latin not only develops English vocabulary but makes English grammar comprehensible. Both languages provide excellent analytic training; for instance, classics students score among the top few in the analytic section of the GRE exams.

Classics is a pre-professional major for law school or for graduate school in any aspect of the ancient world. Classics majors have also continued on to library school. Latin teachers are in demand; numerous students have found rewarding jobs teaching secondary school, with continued involvement in the classics community. Others have gone into business, worked in educational television, and gotten jobs in the writing or editing fields, in archival work, in special education, or in social services.

Program Objectives

The program aims to help students to understand and appreciate the Greek and Latin languages and literatures, and their relevance to the modern world.

Program Learning Outcomes

Having completed the degree program, students should have acquired the following knowledge and skills:

1. Students must demonstrate the ability to interpret the cultural context of primary sources through a variety of methodological approaches.
2. Majors, including Classical Humanities majors, are expected to demonstrate some level of language proficiency.

- Latin majors must be able to read and translate Latin at the advanced level.
- Latin and Greek majors must be able to read and translate either Latin or Greek at the advanced level and the other language at the intermediate level.
- Classical Humanities majors must be able to read and translate either Latin or Greek at the intermediate level.

Academic Programs and Departmental Facilities

The Classics Department offers three Study Abroad courses and a Semester of Study in Rome. For the most recent information on the courses and the semester study, students should consult the websitewww.international.umd.edu/studyabroad.

CLAS 171 Classical Myths in Paris (1 credit). Professor Doherty. Ten days at the end of May. This one-week tour of "classical Paris" (taught on location after two days of background lectures in Maryland) will focus on the Roman past of the city, the rich collections of Greek and Roman art in the Louvre, and the influence of classical styles on the art and architecture of France. Mythology will provide a focus for our comparisons of art from different periods. In addition to the Louvre and the Musée d'Orsay, visits will include walking tours of the Latin Quarter-with its ancient Roman baths and medieval art in the Musée Cluny-and of the Champs Elysées from the Place de la Concorde to the Arc de Triomphe.

CLAS 308G Classics in Context: Greece: The Living Legacy (3 credits). Professor Pittas-Herschbach. Three weeks in June. This course is taught on location in Greece. Students will be based in Athens and will also visit Mycenae, Delphi, Epidaurus, the temple of Aphaia in Aigina, Cape Sounion, and Eleusis. Readings and discussions will explore key issues and themes (cultural, artistic, political and philosophical) associated with Athens during the latter half of the fifth century B.C.

CLAS 308I Italy: Ancient Greek and Roman Culture in Context (3 credits). Professors Rutledge and Scholten. Three weeks in January. This three-week exploration and study of ancient Greek and Roman Culture takes students to the Bay of Naples area, including ancient Pompeii and Herculaneum, and to Rome. The course may also include visits to Florence and Ravenna.

SEMESTER STUDY IN ROME. University of Maryland undergraduates can study in Rome, taking courses in Latin, Greek, Classics, History, and Art History and Archaeology at the American University in Rome (AUR), the oldest independent, four-year, degree-granting American institution of higher learning in the Eternal City. The AUR is located on the top of the Janiculum hill, across the Tiber River from the site of the ancient city.

In addition to our own study abroad programs, students may take advantage of other opportunities to study abroad: for example, in Rome, at the Intercollegiate Center for Classical Studies, or in Athens, at the College Year in Athens. Students studying Modern Greek may also spend a semester at the American College of Thessalonki or the University of Indianapolis in Athens.

Admission to the Major

Admission to the major simply requires a meeting with the undergraduate advisor. No prior knowledge of Latin or Greek is required.

Placement in Courses

Students with score of 4 or 5 in any AP Latin test may not take LATN201 or lower for credit. Students with score of 4 or 5 in more than one AP Latin test may receive additional credit. For further information, contact the department's undergraduate advisor.

Requirements for the Major

Requirements for the Classics major include the College of Arts and Humanities requirement of 45 upper-level credits completed.

The College foreign language requirement will be automatically fulfilled in the process of taking language courses in the major.

		Credits
	Option A: Latin	
LATN	Courses at the 200/300 level	18
LATN	Courses at the 400 level or higher	12
	Supporting courses	9-12
	Any level CLAS, GREK, or related fields such as HIST and ARTH	
	Option B: Greek	
GREK	Courses at the 200/300 level	18
GREK	Courses at the 400 level or higher	12
	Supporting courses	9-12
	Any level CLAS, LATN, or related fields such as HIST and ARTH	
	Option C: Latin and Greek	
LATN	Latin courses	18
GREK	Greek courses*	12
	OR	
GREK	Greek courses	18
LATN	Latin courses*	12
	AND	
	Supporting Courses	9
	For example, CLAS 170, HIST 110, and a 300- or 400-level course in Greek or Roman history	
	**Students with no previous training in the second language may count introductory level courses as part of the 12-hour requirement.*	
	Option D: Classics in Translation (Classical Humanities)	
CLAS	Classics courses	18
LATN	Latin courses, **OR**	12
GREK	Greek courses	
	Supporting Courses	12-14
	Normally upper level courses in Art History, Archaeology, Architecture, Government, History, Linguistics, or Philosophy	

NOTES:

- Students are encouraged to substitute 300- and 400-level courses in LATN and GREK for some of the 18 required credits in CLAS.
- 100 and 200-level courses in GREK may be included among the supporting credits if the student's 12 language credits are taken in Latin, and 100 and 200-level courses in LATN may be included among the supporting credits if the student's 12 language credits are taken in GREK.
- Students are encouraged to take as much language as possible, but should take language courses sequentially; i.e., 101, 102, 201. Once credit has been received in a higher-level language acquisition or grammar course, a lower-level course may not be taken for credit. The student should begin the sequence at the appropriate level.

Requirements for the Minor

Classical Mythology
This minor will introduce students to classical mythology, its uses within ancient Greek and Roman culture, and its subsequent influence on art and literature. The minor requires 15 credits.

Required courses:
CLAS 170 Greek and Roman Mythology (3)
CLAS 470 Approaches to Greek Myth (3)

In addition, the student must choose three courses from the following list, two of which must be at the 300 or 400 level:
CLAS 270 Greek Literature in Translation (3)
CLAS 271 Roman Literature in Translation (3)
CLAS 320 Women in Classical Antiquity (3)
CLAS 330 Ancient Greek Religion: Gods, Myths, Temples (3)
CLAS 331 Ancient Roman Religion: From Jupiter to Jesus (3)
CLAS 370 Classical Myths in America (3)
CLAS 374 Greek Tragedy in Translation (3)
CLAS 419 The Classical Tradition (3)

Students interested in pursuing this minor should consult with the Undergraduate Advisor in the Department of Classics.

Latin
This minor introduces students to the Latin language and enables them to read, in Latin, important works of Latin literature. For students with no prior experience of Latin, the minor requires 21 credits, consisting of the following courses:
Latin 101 Elementary Latin I (4)
Latin 102 Elementary Latin II (4)
Latin 201 Intermediate Latin (4)
Latin 3xx A reading course in Plautus, Petronius, Ovid or Horace and Catullus (3)
Latin 4xx A reading course in a major Latin author (3)

Students who enter with advanced standing in Latin can complete the minor by taking a total of five courses in Latin at the 200 level and beyond. Students interested in pursuing this minor should consult with the Undergraduate Advisor in the Department of Classics.

Greek
This minor introduces students to ancient Greek and enables them to read, in Greek, important works of Greek literature. This minor requires 21 credits, consisting of the following courses:
Greek 101 Elementary Ancient Greek I (4)
Greek 102 Elementary Ancient Greek II (4)
Greek 201 Intermediate Ancient Greek (4)
Greek 301 Scenes from Athenian Life (3)
Greek 4xx Either Greek Philosophers, Greek Tragedy, or Homer (3)

A Classics course at the 300 or 400 level such as CLAS 374 (Greek Tragedy) or CLAS 330 (Greek Religion) (3)

Students interested in pursuing this minor should consult with the Undergraduate Advisor in the Department of Classics.

Advising

Departmental advising is mandatory for all majors every semester.

Student Societies and Professional Organizations

Eta Sigma Phi is the national undergraduate Honor Society in Classics founded in 1914 at the University of Chicago. The University of Maryland's chapter, Zeta Nu, was established in 1994. Students are invited to join in the spring semester. To qualify, a student must be registered in a 300- or 400- level Greek or Latin course, must have a B+ average in all language courses, and an overall GPA of B.

Students can also join the American Philological Association, which is the national classics professional organization, and the Classical Association of the Atlantic States, which is our regional classical organization.

Scholarships and Financial Assistance

The Office of Student Financial Aid (OSFA) administers all types of federal, state and institutional financial assistance programs and, in cooperation with other university offices, participates in the awarding of scholarships to deserving students. For information, visit: www.financialaid.umd.edu.

The Classics Department annually awards the Avery Prize to a Latin student of special merit, and the Steyer Undergraduate Scholarship to an outstanding classics concentrator. To honor the memory of Sylvia Gerber, who taught Latin for many years in the Washington, DC public schools, her son Louis has recently provided the department with funding to support the training of Latin teachers and Latin pedagogical studies, including an undergraduate award for an aspiring Latin teacher.

Awards and Recognition

Outstanding students are invited to join Eta Sigma Phi, the national undergraduate Honor Society in Classics (see Student Societies and Professional Organizations above).

The department also annually awards the Avery Prize for excellence in Latin, and the Steyer and Gerber Scholarships (see Scholarships and Financial Assistance above).

Communication (COMM)

College of Arts and Humanities

2130 Skinner Building, 301-405-6519
www.comm.umd.edu
commadvising@umd.edu
Chair: E. Toth
Director: L. Waks (Director, Senior Lecturer)
Professors: E. Fink, R. Gaines, J. Klumpp, S. Parry-Giles, A. Wolvin
Associate Professors: L. Aldoory, D. Cai, D. Hample, T. Parry-Giles, M. Tonn, M. Turner
Assistant Professors: S. Khamis, M. Liu, K. Maddux, X. Nan, N. Ofulue, T. Reimer
Lecturers: R. Coleman (Lecturer), J. Gowin (Coordinator), C. Harper (Coordinator), S. Simon (Lecturer), B. Swartz (Lecturer), J. Tenney (Lecturer), R. Toth (Lecturer)
Affiliate Professors: J. Fahnestock (ENGL), A. Kruglanski (PSYC), D. Rosenfelt (WMST)
Affiliate Associate Professors: M. Gelfand (PSYC), S. McDaniel (KNES)
Professors Emeriti: J. Grunig, L. Grunig
Visiting Faculty: K. Kendall (Res Prof, Visit Prof)

The Major

Communication takes as its subject matter the history, processes, and effects of human communication through speech and its extensions. The departmental curriculum is designed to provide a liberal education in the arts and sciences of human communication as well as preparation for career opportunities in business, government, education, law, and related fields. Students pursue academic programs that emphasize many disciplinary areas, including intercultural communication, political communication, public relations, negotiation and conflict management, cognition and persuasion, rhetorical theory, risk communication, history of rhetoric, and criticism of public discourse. Departmental advising is mandatory for new majors, second semester sophomores, and seniors.

Program Learning Outcomes

Upon completion of the degree program in Communication, students should be able to demonstrate the following knowledge and skills:

1. An ability to distinguish among a variety of theoretical approaches in the communication discipline and use them appropriately and effectively in academic work.

2. An ability to conduct research and write research reports employing social scientific and/or humanistic approaches in the communication discipline.

3. An ability to argue clearly and effectively in a speech.

Academic Programs and Departmental Facilities

The Center for Political Communication and Civic Leadership unites research, education, and public engagement to foster democratic communication by a diverse people. See www.comm.center.umd.edu.

The Center for Risk Communication Research (CRCR) advances dialogue and understanding about communication's role in controlling and preventing risk; about how publics perceive risk communication; and about the political, economic and social contexts for risk communication. Scholars associated with the CRCR examine health, food safety, security, and environmental risks. See www.comm.riskcenter.umd.edu.

The department's Media Center is designed to provide one-on-one tutoring and instructional support to further students' oral communication skills and confidence. The Media Center is equipped with cameras and recording equipment to tape speeches and presentations for practice and critique.

Admission to the Major

First-time Freshman

All first-time freshmen who designate communication as a major prior to the end of the final exam period of their first semester will be admitted directly to the program. They must sign a Memorandum of Understanding that states that they understand that by the semester in which they attain 45 University ofMaryland credits (excluding AP), they must meet the following Gateway requirements.

a. Complete 50% of the CORE requirements, including Fundamental Studies requirements in Mathematics and English.

b. Complete one of the following courses with a grade of C or better: BMGT230, CCJS200, EDMS451, PSYC200, SOCY201, or equivalent.

c. Complete COMM107, COMM 200, or COMM230 with a grade of C or better

d. Complete COMM250 with a grade of C or better and

e. A GPA of 2.0 or better

Students may repeat only one of the Gateway courses and that may be repeated only once in their attempt to meet the requirements. Students who fail to meet the Gateway requirements by the semester in which they attain 45 credits will be dismissed from the program and cannot reapply.

Transfer Students

Internal and external transfer students who meet the Gateway requirements specified above and have a cumulative GPA of 2.7 in all college-level coursework may apply to the program up until and including the semester in which they reach 60 credits. (Students are encouraged to apply at any time prior to reaching 60 credits as long as the requirements have been completed.)

For those students who meet the Gateway requirements and who apply after the semester in which they reach 60 credits, admission is competitive and on a space-available basis.

Newly admitted transfer students who have more than 60 credits have only their first semester at the University of Maryland to complete the Gateway requirements.

Appeals

All students may appeal admission decisions. Students directly admitted as freshmen, who are dismissed because of failure to meet Gateway requirements or be in good academic standing at 45 credits, may appeal directly to the Undergraduate Director in the Department of Communication. All other students who are denied admission may appeal to the university's Office of Undergraduate Admissions.

Requirements for the Major

The course of study for a Communication major must satisfy all of the following requirements:

		Credits
COMM107	Oral Communication: Principles and Practices, **OR**	3
COMM200	Critical Thinking and Speaking, **OR**	3
COMM230	Argumentation and Debate	3
COMM250	Introduction to Communication Inquiry	3
COMM400	Research Methods in Communication	3
COMM401	Interpreting Strategic Discourse	3
	Completion of one of the following tracks:	

Social Influence Track

COMM402	Communication Theory and Process	3
	Five from:	15
COMM420	Theories of Group Discussion	
COMM424	Communication in Complex Organizations	
COMM425	Negotiation and Conflict Management	
COMM426	Conflict Management	
COMM435	Theories of Interpersonal Communication	
COMM470	Listening	
COMM475	Persuasion	
COMM477	Discourse Analysis	
COMM482	Intercultural Communications	
COMM	COMM Elective	
COMM UL	Upper Level COMM Elective	
	One Statistical Analysis from:	3-4
PSYC200	Statistical Methods in Psychology	
SOCY201	Introductory Statistics for Sociology	
BMGT230	Business Statistics	
EDMS451	Introduction to Educational Statistics (or an equivalent course - see advisor)	
	One Structural Analysis of Language from:	3
LING200	Introductory Linguistics	
HESP120	Introduction to Linguistics	
ANTH380	Culture and Discourse (or an equivalent course - see advisor)	
	Social Influence	9
	courses related to Social Influence in one department other than COMM	

Communication Studies Track

COMM402	Communication Theory and Process	3
	One from:	3
COMM420	Theories of Group Discussion	
COMM424	Communication in Complex Organizations	
COMM425	Negotiation and Conflict Management	
COMM426	Conflict Management	
COMM435	Theories of Interpersonal Communication	
COMM470	Listening	
COMM475	Persuasion	
COMM477	Discourse Analysis	
COMM482	Intercultural Communications	
	One from:	3
COMM330	Argumentation and Public Policy	
COMM360	The Rhetoric of Black America	
COMM450	Ancient and Medieval Rhetorical Theory	
COMM451	Renaissance & Modern Rhetoric Theory	
COMM453	The Power of Discourse in American Life	
COMM455	Speechwriting	
COMM460	Public Life in American Communities, 1634-1900	
COMM461	Voices of Public Leadership in the Twentieth Century	
COMM469	The Discourse of Social Movements	
COMM471	Public Communication Campaigns	
COMM476	Language, Communication, and Action	
COMM	COMM Elective	
COMM300/400	Upper Level COMM Electives	12
	One Statistical Analysis from:	3-4
PSYC200	Statistical Methods in Psychology	
SOCY201	Introductory Statistics for Sociology	
BMGT230	Business Statistics	
EDMS451	Introduction to Educational Statistics	

	(or an equivalent course - see advisor)	
	One Structural Analysis of Language from:	3
LING200	Introductory Linguistics	
HESP120	Introduction to Linguistics	
ANTH380	Culture and Discourse	
	or an equivalent course - see advisor	
	Communications Studies	9
	courses related to Communication Studies in one department other than COMM	

Public Relations Track

	The requirements below are effective for incoming Fall 2008 freshmen and transfers admitted to Communication.	
COMM231	News Writing and Reporting for Public Relations	3
COMM232	News Editing for Public Relations	3
COMM350	Public Relations Theory	3
COMM351	Public Relations Techniques	3
COMM352	Specialized Writing in Public Relations	3
COMM386	Experiential Learning*	3-6
	** only 3 credits apply to major*	
COMM483	Senior Seminar in Public Relations	3
COMM300/400	Upper Level COMM Electives	6
	One Statistical Analysis from:	
PSYC200	Statistical Methods in Psychology	3
SOCY201	Introductory Statistics for Sociology	4
BMGT230	Business Statistics	3
EDMS451	Introduction to Educational Statistics	3
	or an equivalent course - see advisor	
COURSESXX	Courses related to Public Relations in one department other than COMM or JOUR	9

Rhetoric and Political Culture Track

COMM450	Ancient and Medieval Rhetorical Theory	3
	Five from:	
COMM330	Argumentation and Public Policy	3
COMM360	The Rhetoric of Black America	3
COMM451	Renaissance & Modern Rhetoric Theory	3
COMM453	The Power of Discourse in American Life	3
COMM455	Speechwriting	3
COMM460	Public Life in American Communities, 1634-1900	3
COMM461	Voices of Public Leadership in the Twentieth Century	3
COMM469	The Discourse of Social Movements	3
COMM471	Public Communication Campaigns	3
COMM476	Language, Communication, and Action	3
COMM	COMM Elective	3
COMM300/400	Upper Level COMM Elective	3
	One Critical Analysis of Discourse from:	
AMST432	Literature and American Society	3
CMLT488	Genres	3
ENGL453	Literary Theory	3
JWST263	Hebrew Bible: Poetry and Prophecy	3
PHIL233	Philosophy in Literature	3
	One Structural Analysis of Language from:	
LING200	Introductory Linguistics	3
HESP120	Introduction to Linguistics	3
ANTH380	*Culture and Discourse*	3
	or an equivalent course - see advisor	
	courses related to Rhetoric and Political Culture in one department other than COMM	9

Notes:

- Because the department's curriculum changes over time, the department's Undergraduate Director may approve other appropriate Communication courses to meet the requirements for each track.
- Courses required for the Communication major, but taken outside COMM, may be used to satisfy CORE requirements.
- Only 3 credits of COMM386 may apply toward the major.

Requirements for the Minor

Rhetoric is the theory of persuasive communication, both written and spoken. The minor in rhetoric has been designed for students who want to know the principles and skills of practical persuasion in its varied contexts. The program will be of value for all students wishing to improve their writing and speaking skills and especially useful for those students who plan careers in business, management, law, government, and education. The minor in rhetoric is an interdisciplinary program offered through the cooperation of the Department of English and the Department of Communication.

Fifteen semester hours of coursework are required:

A. Six semester hours from the course list in Rhetorical Theory and Analysis of Discourse
B. Six semester hours from the course list in Writing and Speaking Skills
C. Three semester hours in electives from either section of the Rhetoric Course List
D. At least nine of the fifteen semester hours must at the 300-level or higher (including at least six hours at the University of Maryland, College Park)
E. No more than six of the fifteen semester hours may be taken at an institution other than the University of Maryland, College Park
F. No more than six of the fifteen semester hours may count toward the student's major, supporting courses, and college requirements
G. No course from the student's major department may count toward the minor
H. No course used to satisfy a Fundamental Studies requirement may count toward the minor
I. No course used to satisfy the requirements of another minor may count toward the rhetoric minor.
J. No course grade below the grade of "C" may count toward the minor

Entering the Minor:

Students wishing to pursue the minor should review the requirements above, make tentative selections of courses below to satisfy these requirements, and meet with one of the advisers below. The earliest possible meeting to draft a list of courses is recommended. Students must then officially declare the minor in rhetoric.

Current course lists for the minor in Rhetoric can be found at:
www.comm.umd.edu/rhetoricminor.html

Minor Advisors:

James F. Klumpp
Department of Communication
2122 Skinner Building
jklumpp@umd.edu
301-405-6520

Shirley Logan
Department of English
4139 Susquehanna Hall
slogan@umd.edu
301-405-9659

Advising

Advising is available throughout the year in 2101D Skinner Building. Students should check Testudo for their registration date and for any mandatory advising blocks. Advising questions can be sent to commadvising@umd.edu or you may call 301-405-0862 or 301-405-0863.

Undergraduate Research Experiences

Research experiences include assisting on faculty research projects, participating in special team research projects, and working with the department's Center for Political Communication and Civic Leadership and Center for Risk Communication Research.

Internships

The department's internship program helps communication majors gain professional experience, build a professional portfolio, and take the first steps toward a career. The department structures its internship program around a course, COMM386:*Experiential Learning*, offered each school term.

Honors Program

The Honors Program provides students with an opportunity for intensive study of Communication. The program provides participants with opportunities to deepen their understanding of the discipline through graduate-level coursework and to enrich this understanding through closely supervised research and involvement in the intellectual life of the department.

Students interested in the Honors Program apply for the program, ordinarily during the second semester of the sophomore year or the first semester of the junior year. Application is filed with the Undergraduate Director. Students should have the following qualifications:

- An overall GPA of 3.3 or above.
- Completion of nine semester hours in Communication including COMM 250.
- GPA of 3.5 or above in Communication.

Student Societies and Professional Organizations

Social and academic activities are available to students by participating in the following student organizations: the Undergraduate Communication Association, the Lambda Pi Eta Honor Society, and the Maryland chapter of the Public Relations Student Society of America.

Scholarships and Financial Assistance

The department offers the June Dowler Buteau Scholarship to a freshman student who exhibits academic excellence.

Comparative Literature Program (CMLT)

College of Arts and Humanities
2116 Tawes Hall, 301-405-3839
www.cmlt.umd.edu
Chair: K. Cartwright
Director: Z. Nunes
Professors: A. Berlin (English), M. Collins (English), R. Harrison (Spanish & Portuguese), C. Peterson (English), B. Richardson (English)
Associate Professors: R. Bauer (English), K. Chuh (English), Z. Nunes (English), S. Ray (English), O. Wang (English)
Assistant Professors: E. Bearden (English), S. Jelen (English & Jewish Studies), R. Ontiveros (English), G. Passannante (English), V. Valiavitcharska (English)

Instructors: E. Robinson
Lecturers: G. Metcalf

The Major

Courses offered by this department may be found under the following acronym CMLT in Chapter 7.

Computer Engineering (ENCP)

A. James Clark School of Engineering
2429 A.V. Williams Building, 301-405-3685
www.ece.umd.edu
eceadvise@umd.edu
Chair: P. O'Shea (Professor)
Professors: E. Abed, A. Agrawala, T. Antonsen, J. Baras, D. Barbe, A. Barg, S. Bhattacharyya, G. Blankenship (Associate Chair, External Relations), R. Chellappa (Distinguished Scholar Teacher), N. De Claris, M. Dagenais, C. Davis (Distinguished Scholar Teacher, A. Ephremides, C. Espy-Wilson, N. Farvardin, R. Ghodssi, V. Gligor, J. Goldhar, N. Goldsman, R. Gomez, V. Granatstein, J. Hendler, P. Ho, J. Hollingsworth, A. Iliadis, J. JaJa, J. Kim (Prof Of Practice), P. Krishnaprasad, W. Lawson (Associate Chair, Undergraduate Studies), K. Liu (Associate Chair, Graduate Studies, Distinguished Scholar Teacher), A. Makowski, S. Marcus (Distinguished Scholar Teacher), I. Mayergoyz (Distinguished Scholar Teacher), J. Melngailis, H. Milchberg (Distinguished Scholar Teacher), K. Nakajima, P. Narayan, R. Newcomb, Y. Oruc, E. Ott (Distinguished University Professor), M. Peckerar, H. Rabin, S. Shamma, M. Shayman, A. Tits, T. Venkatesan (Res Prof), U. Vishkin, C. Yang
Associate Professors: P. Abshire, R. Barua, S. Bhattacharjee, P. Dowd (Res Assoc Prof), M. Franklin, T. Horiuchi, B. Jacob, R. La, T. Murphy, A. Papamarcou, G. Qu, C. Silio, J. Simon, A. Srivastava, S. Ulukus, M. Wu, D. Yeung
Assistant Professors: M. Hicks, J. Katz, N. Martins, P. Petrov, K. Rosfjord, E. Waks
Lecturers: W. Hawkins
Affiliate Professors: S. Anlage, L. Davis, H. Frank, M. Fu, D. O'Leary, G. Rubloff, F. Wellstood
Affiliate Associate Professors: J. Bernstein, R. Duraiswami, R. Phaneuf, E. Smela
Affiliate Assistant Professors: M. Cukier
Adjunct Assistant Professors: R. Shekhar
Professors Emeriti: L. Davisson, F. Emad, R. Harger, C. Lee, W. Levine, P. Ligomenides, H. Lin, J. Orloff, J. Pugsley, M. Reiser, M. Rhee, C. Striffler, L. Taylor, S. Tretter, K. Zaki

The Major

The computer engineering major combines the strengths of both the Department of Electrical and Computer Engineering and the Department of Computer Science to prepare students for careers in the computer industry. The program encompasses the study of hardware, software, and systems questions that arise in the design, development, and application of computers and embedded systems. Specifically, computer engineering students will have a knowledge of hardware systems (electrical networks, electronics, and VLSI); a knowledge of software systems (algorithms, data structures, and operating systems); and a knowledge of how these two domains interact (digital logic, signal and system theory, computer architectural and performance analysis). Computer Engineering students will learn about everything that goes into digital and computing systems, from solid state physics to CMOS VLSI design, to computer architecture to programming, and from operating systems to compiler and language theory. Courses offered by this department may be found under the following acronym: ENEE and CMSC.

Program Objectives

The educational objectives are broadly stated goals agreed upon by a consensus of the faculty pertaining to accomplishments or level of achievement desired of our students 3-5 years after graduation. These fall under the following four headings:

1. Technical Knowledge: Graduate engineers trained in the fundamentals of computer engineering and relevant specialties so they are prepared to succeed in graduate school or be productive engineers in government or industry.

2. Laboratory, Design, and Research: Graduate engineers who can design and perform experimental projects to solve diverse problems, with special emphasis on exploiting diverse technical knowledge and skills so they can engage in design work or research.

3. Preparation for Further Study: Graduate engineers who have the educational foundations and skills necessary to engage in lifelong learning in every sphere of their life.

4. Professionalism: Graduate engineers who have the professional skills they need to succeed in their chosen profession and are prepared to fulfill their professional responsibilities as engineers, which include their ethical obligations to society, employers, employees, and fellow engineers.

Program Learning Outcomes

Educational Opportunities

The program offers many educational opportunities. Most of these are designed to impart knowledge and skills required of all our students so that by the time of graduation they are prepared to achieve the Educational Objectives. Other opportunities are optional and offered for interested and qualified students. The educational opportunities are:

1. Broad Foundation: Understanding of and ability to apply relevant mathematical, scientific, and basic engineering knowledge.

2. Disciplinary Foundation: Understanding of and ability to apply core computer engineering technical knowledge.

3. Specialization: Understanding of and ability to apply the skills and concepts within one or more of the specializations within computer engineering.

4. Laboratory: Understanding of and ability to employ standard experimental techniques to generate and analyze data as well as use state-of-the-art software and instrumentation to solve computer engineering problems.

5. Design: Theoretical understanding of and ability to engage in the creative design process through the integration and application of diverse technical knowledge and expertise to meet customer needs and address social issues.

6. Research: Ability to formulate and answer empirical and theoretical questions through participation in undergraduate research projects for interested and qualified students.

7. Leadership: Awareness of the need for engineering leaders both within the profession and the larger community, as well as some preparation to assume those leadership roles.

8. Communication Skills: Ability to communicate effectively both through oral presentations and the written word.

9. Interpersonal Skills: Ability to interact professionally with others in the workplace, to engage effectively in teamwork, and to function productively on multidisciplinary group projects.

10. Engineering Ethics: Understanding of the engineer's responsibilities to employers, society, and their fellow engineers as well as an ability to recognize potential and actual ethical problems, analyze critically those situations, and formulate sound ethical decisions.

11. Engineering & Society: Understanding of the symbiotic relationship between engineering and society - specifically, how engineering artifacts are shaped by and incorporate human values as well as the ways in which engineering solutions impact society - and the larger social obligations this entails for engineers.

12. Life-long Learning: Skills necessary to engage in life-long learning and an understanding of the need to continually exploit those skills in refining and updating one's knowledge base.

Admission to the Major

Admission requirements are the same as those of other departments in the School of Engineering. See Admission Requirements for A. James Clark School of Engineering in Colleges and Schools section of this site.

Requirements for the Major

As in all engineering degrees, the student starts out with a core curriculum in mathematics and basic science. Subsequent years of study involve courses covering a balanced mixture of hardware, software, hardware-software trade-offs, and basic modeling techniques used to represent the computing process. Courses covering algorithms, data structures, digital systems, computer organization and architecture, software and hardware design and testing, operating systems, and programming languages will be included. Elective courses must include electrical engineering and computer science courses and technical courses outside the departments. ***Students*** ***Students must earn a grade of 'C' or higher in all engineering, mathematics, and science courses as well as the prerequisites for these courses.*** A sample program is shown below.

		Credits	**Credits**
	Freshman Year	**First Sem**	**Second Sem**
CORE**	CORE General Education	3	3
CHEM135	General Chemistry for Engineers	3	
PHYS161	General Physics		3
MATH140/141	Calculus I / Calculus II	4	4
CMSC132*	Object Oriented Programming II		4
ENES100	Intro. to Engineering Design	3	
	Total Credits	**13**	**14**
	Sophomore Year++		
MATH246	Differential Equations		3
CMSC212	Computer Science II	4	
CMSC250	Discrete Structure	4	
CMSC351	Algorithms		3
PHYS260/261	General Physics II with Lab	4	
ENEE222	Elements of Discrete Signal Analysis		4
ENEE200**	Social & Ethical Dimensions of ECE Technology		3
ENEE205	Electric Circuits		4
ENEE244	Digital Logic Design	3	
	Total Credits	**15**	**17**
	Junior Year		
CORE**	CORE General Education	3	3
CMSC330	Organization of Prog. Languages	3	
CMSC412	Operating Systems		4
ENEE303	Analog and Digital Electronics	3	
ENEE307	Electronics Circuits Design Lab	2	
ENEE322	Signal and System Theory	3	
ENEE324	Engineering Probability		3
ENEE350	Computer Organization	3	
ENEE446	Computer Design		3
	Total Credits	**17**	**13**

	Senior Year		
CORE**	CORE General Education	3	3
ELECTIVE	Computer Engineering Technical Electives	12	10
ENGL393	Technical Writing		3
	Total Credits	**15**	**16**

++ Effective with the Fall 2009 freshmen admit class, students will be required to follow the new curriculum above. Students enrolled prior to Fall 2009 or students enrolled in parallel programs at other 2 and 4 year institutions should follow the old requirements. However, records will be reviewed when necessary on an individual basis during the phase in/out period, and adjustments made in degree requirements.
* Students may need to take CMSC 131, Object Oriented Programming I, or the computer science exemption exam before taking CMSC 132.
** Note: This sample schedule assumes at least one of the CORE Distributive Studies classes also satisfies the CORE Cultural Diversity requirement and ENEE200 is used as a CORE IE to satisfy one of the distributive studies requirements. See the GENERAL EDUCATION REQUIREMENTS (CORE) for details about CORE program requirements.

Technical Elective Requirements

Effective Spring 2001, all BSCP graduates must distribute their 24 credits of technical electives among the following course categories:

		Credits
Category A	Mathematics and Basic Science Electives	minimum of 6
Category B	Computer Science Theory and Applications	minimum of 3
Category C	Electrical Engineering Theory and Applications	minimum of 3
Category D	Advanced Laboratory	minimum of 2
Category E	Capstone Design	minimum of 3
Category F	Engineering (not Electrical or Computer)	3

Please read carefully, and make a note of the following special cases and other items:

1. Two credits of ENEE 499, Senior Projects in Electrical and Computer Engineering, may be used to satisfy the Advanced Laboratory requirement subject to approval by the faculty supervisor and the Associate Chair. The maximum number of ENEE 499 credits that may be applied towards EE technical elective requirements is five.

2. Additional Capstone Design courses can be used as substitutes for the required Electrical Engineering Theory and Applications course, and/or the required Advanced Laboratory course, provided one of the following is completed: ENEE 408A, 408B, 408C, or 408F.

3. Completion of ENEE 408A and ENEE 459A satisfies both the Capstone Design and Advanced Laboratory requirements.

4. If you have any questions on how these requirements affect your current selection of technical electives, please contact an advisor.

Advising

All faculty in Electrical and Computer Engineering function as undergraduate mentors, and every student is assigned a mentor in their first semester in the major. Additional advising is done by the Associate Chair for Undergraduate Studies, the Director and Associate Director of Undergraduate Studies, and other professional staff members. Departmental approval is required for registration in all upper-division courses in the major. The department's Undergraduate Office (2429 A.V. Williams Building, 301-405-3685) is the contact point for undergraduate advising questions.

Undergraduate Research Experiences

The Department of Electrical and Computer Engineering is affiliated with more than 40 specialized laboratories, supporting activities including: speech and image processing, high performance systems, mobile computing and multimedia, communication networks, robotics, control systems, neural systems, systems integration, VLSI design and testing, experimental software engineering, semiconductor materials and devices, photonics, fiber optics, ion beam lithography, real-time systems, human-computer interaction, and virtual reality. Undergraduate students are encouraged to engage in research at some point during their education. Active participation in research not only allows students to apply what they have learned in class, it also gives them greater insight into a specific area within ECE and an appreciation for the subtleties and difficulties associated with the production of knowledge and fundamental new applications. Research experience also prepares students for the demands of graduate school and the work force.

The ECE department also offers outstanding summer research internship programs. The Maryland Engineering Research Internship Team program offers research opportunities for top undergraduates across the country who are interested in using electrical engineering skills and tools to address important biosystems applications. The Training and Research Experiences in Nonlinear Dynamics program offers research opportunities for students interested in nonlinear dynamics. The students participate in cutting edge, team-based research, technical and educational seminars, and field trips to local industry. Students can earn academic credit for their participation in these summer programs.

Additional information on participating in undergraduate research can be found at www.ece.umd.edu/Academic/Under/advising/ENEE499.html.

Co-op Programs

Participation in the Cooperative Education Program or in an Internship with private industry or a government agency is encouraged. See A. James Clark School of Engineering Co-op and Career Services entry for details.

Honors Program

The Electrical and Computer Engineering Honors Program is intended to provide a more challenging and rewarding undergraduate experience for students pursuing the baccalaureate in Electrical or Computer Engineering. The program requires students to complete honors versions of four junior level electrical engineering courses and an honors project during the senior year. Students completing all program requirements with a 'B' average (3.0 on a 4.0 scale) and a cumulative GPA of 3.0 for all undergraduate work will have their participation noted on their B.S. diploma. Students are invited to join the ECE honors program upon admission to the university, with an additional opportunity to join after the sophomore year.

Student Societies and Professional Organizations

The ECE Department has an active Student Chapter of the Institute of Electrical and Electronics Engineers (IEEE). Information and instructions for joining can be found at http://ieee.ece.umd.edu. Equally active is the chapter of Eta Kappa Nu, the nationwide Electrical Engineering honorary society. Information on eligibility can be obtained at http://hknumd.edu.org. The ECE Undergraduate Student Council is an autonomous body that represents the interests of undergraduate students, creates a constructive social environment, provides feedback to the Department and oversees the undergraduate study lounge. Additional information can be found at http://www.ece.umd.edu/eceusc/index.html.

Additionally, there is a program for Women in Electrical and Computer Engineering (WECE) and a group called the Leaders in ECE, who serve as our ambassadors, give insight to new and prospective students, and participate in departmental events such as our "International Day" when we celebrate the cultural diversity of the students and faculty in our department.

Scholarships and Financial Assistance

Several corporate scholarships are administered through the Department. All students must complete the College of Engineering's online scholarship application by May 1 each year to be considered for all College of Engineering and Electrical and Computer Engineering Departmental scholarships for the following academic year. For information visit www.ursp.umd.edu/scholarships/index.html.

Job Opportunities

Computer Engineers have wide ranging employment opportunities in both industry and government. Some of the specific jobs that students of computer engineering might acquire are: computer designer, application specialist, embedded system designer, interfacing and telecommunication designer, data logging and control, industrial systems design, hardware design, biomedical device design, real-time software design and development, instrumentation analysis and control, computer-integrated manufacturing.

Awards and Recognition

The Department of Electrical and Computer Engineering offers the following awards: 1. Outstanding academic performance award presented to a junior for academic excellence. 2. Service Award to the graduating senior who has show a comittment to service to fellow students. 3. Chair's Award for outstanding academic performance to a graduating senior.

Computer Science (CMSC)

College of Computer, Mathematical and Physical Sciences
1119 A.V. Williams Building, 301-405-2672
www.cs.umd.edu
ugrad@cs.umd.edu
Chair: L. Davis
Professors: A. Agrawala, J. Aloimonos, S. Bhattacharjee, W. Cleaveland, L. Defloriani, B. Dorr, H. Elman (Assoc Chair), W. Gasarch, J. Hollingsworth (Assoc Chair), D. Jacobs, S. Khuller, D. Mount, D. Nau, D. O'Leary, D. Perlis, A. Porter, W. Pugh, J. Reggia, N. Roussopoulos, S. Salzberg, H. Samet, A. Shankar, B. Shneiderman, A. Srinivasan, V. Subrahmanian, A. Varshney
Associate Professors: W. Arbaugh, B. Bederson, R. Duraiswami, J. Foster, L. Getoor, M. Hicks, J. Katz, P. Keleher, C. Kruskal, A. Memon, J. Purtilo, A. Sussman, C. Tseng
Assistant Professors: A. Deshpande, C. Kingsford, M. Pop, V. Sazawal, N. Spring
Lecturers: F. Emad, E. Golub, L. Herman, M. Hugue, N. Padua-Perez, J. Plane (Senior Lecturer)
Professors Emeriti: V. Basili, Y. Chu, L. Kanal, R. Miller, J. Minker, G. Stewart (Distinguished University Professor Emeritus), M. Zelkowitz

The Major

Computer science is the study of computers and computational systems: their application, design, development and theory. Principal areas within computer science include artificial intelligence, computer systems, database systems, human factors, numerical analysis, programming languages, software engineering, and theory of computing. A computer scientist is concerned with problem solving. Problems range from abstract questions of what problems can be solved with computers to practical matters such design of computer systems which are easy for people to use. Computer scientists build computational models of systems including physical phenomena (weather forecasting), human behavior (expert systems, robotics), and computer systems themselves (performance evaluation). Such models often require extensive numeric or symbolic computation.

Combined B.S./M.S. Program in Computer Science

The Department of Computer Science offers a combined B.S./M.S. degree program for students with exceptional ability and interest in computer science. Students enrolled in the Combined Degree Program may count up to 9 credits of graduate coursework taken for their undergraduate degree toward the M.S. degree as well. Those interested in the program should apply shortly before beginning their junior year. For more information, contact the Computer Science Department Undergraduate Education Office.

Requirements for the Major

The course of study for a Computer Science major must include all of the following requirements:

1. A grade of C or better in each of the following courses:

    a. CMSC 131 or a score of 5 on A version of the JAVA Advanced Placement exam or a score of 4 or 5 on the AB version of the JAVA Advanced Placement exam or an acceptable score on the appropriate Department exemption examination, which is to be taken at the time of entry into the program.

    b. CMSC 132 or acceptable score on the appropriate Department exemption examination, which is to be taken at the time of entry into the program.

    c. CMSC 212 or acceptable score on the appropriate Department exemption examination, which is to be taken at the time of entry into the program.

    d. CMSC 250 or acceptable score on the appropriate Department exemption examination, which is to be taken at the time of entry into the program.

    e. At least 27 credit hours at the 300-400 levels. These must include CMSC 311, CMSC 330, CMSC 351, and at least 15 credit hours from the following CMSC courses with no more than two courses from a single category:

        Computer Systems: Up to two of 411, 412, 414, 417
        Information Processing: 420, one of 421 or 424 or 426 or 427
        Software Engineering/Programming Languages: Up to two of 430, 433, 434,435
        Algorithms and Computation Theory: 451, one of 452 or 456
        Numerical Analysis*: One of 460 or 466.

        ***Note:** Courses in Numerical Analysis require MATH 240 and 241 as additional prerequisites. Students without either of these prerequisites must choose their 15 credit hours from the remaining courses in the other four areas.*

2. MATH 140 and 141. A STAT course which has MATH 141 (or a more advanced mathematics course) as a prerequisite, and one other MATH, STAT, or AMSC course which has MATH 141 (or a more advanced mathematics course as a prerequisite. A grade of C or better must be earned in each of the courses. No course that is cross-listed as CMSC may be counted in this requirement.

3. A minimum of 12 additional credit hours of 300-400 level courses in one discipline outside of computer science with an average grade of C or better. No course that is cross-listed as CMSC may be counted in this requirement.**Note**: The following general guidelines should be observed when selecting courses for this upper level supporting sequence:

    a. Courses must have all the same four-letter acronym

    b. Each course should be a minimum of 3 credits.

    c. Only 1 special topics or independent study course (such as courses numbered 498 or 499) may be used.

Any variations must be approved by the Undergraduate Program Director. No course used to fulfill another requirement (other than CORE Advanced Studies) can be counted in this requirement.

Requirements for the Minor

The purpose of the minor in Computer Science is not only to give students a strong foundation in, and understanding of, algorithmic reasoning, problem solving methods involving computers and computation, and a solid base to help students adapt to future changes in technology, but to complement and enhance any student's major program of study. The computer science minor may be earned by students not majoring in computer science and computer engineering. A grade of C or better must be earned in all courses required for the minor. See http://undergrad.cs.umd.edu/current-students/degree-requirements-for-minor/ for detailed information. The award of a Minor will be noted on the student's transcript at the time of graduation.

Scholarships and Financial Assistance

There are multiple endowed scholarships available to students majoring in computer science. Additional details can be found at http://undergrad.cs.umd.edu/contact/scholarship-opportunities

In addition, students may find employment as tutors, as undergraduate teaching assistants, or as members of the department's laboratory staff. Professors may also have funds to hire undergraduates to assist in research. Many students also participate in internship or cooperative education programs, working in the computer industry for a semester during their junior or senior years.

Counseling & Personnel Services (EDCP)

College of Education
3214 Benjamin Building, 301-405-2858
www.education.umd.edu/EDCP
Chair: D. Kivlighan, Professor & Chair
Professors: G. Gottfredson, M. Hoffman, S. Komives, C. Lee, R. Lent, S. Rosenfield, H. Teglasi-Golubcow
Associate Professors: V. Boyd, E. Fabian, C. Holcomb-Mccoy, K. Inkelas, S. Jones, M. Lucas, W. Strein
Assistant Professors: J. Bryan, P. Gold (Asst Prof), P. Gold, K. MacDonald-Wilson, P. Phillips, S. Quaye
Affiliate Associate Professors: J. Hutchinson
Professors Emeriti: M. McEwen

The Major

The Department of Counseling and Personnel Services offers programs of preparation at the master's degree, advanced graduate specialist, and doctoral degree levels for counselors in elementary and secondary schools, rehabilitation agencies, business and industry, and college and university counseling centers. Additional graduate programs of preparation are provided for college student personnel administrators and school psychologists. The department also offers a joint doctoral program with the Department of Psychology in counseling psychology.

While the department does not have an undergraduate major, it does offer a number of courses which are open to undergraduates and are suggested for students considering graduate work in counseling or other human service fields. Specific courses in peer counseling, leadership, and diversity are provided.

Requirements for the Minor

Requirements for the Minor in Leadership Studies

The EDCP Minor in Leadership Studies promotes college student leadership development by educating undergraduate students *for* and *about* leadership in a complex world. The goal of the minor is to prepare students to serve effectively in formal and informal leadership roles in campus, local, national, and global contexts. Faculty and students in the minor are dedicated to advancing the field of leadership studies by building upon and critically evaluating existing theoretical, research-based, and practical knowledge. Core courses in the minor are sequenced to meet increasingly complex sets of learning outcomes across cognitive, personal development, and group/organizational domains. Students in the minor are exposed to diverse theories and perspectives on leadership and are encouraged to apply analytical skills to develop their own working philosophy of leadership that will serve them in organizational and career contexts. Civic engagement and multicultural competence are viewed as necessary requirements for leadership.

Eligibility

The first 20 qualified applicants will be accepted on a first-come, first-serve basis each semester. In order to apply for the minor in Leadership Studies, students must have:

1. Completed at least 30 credit hours prior to application to the program.
2. Be in good academic standing.
3. Completed EDCP 217 with a C or better.
4. Been admitted into the Minor prior to the completion of the final 9 credits of Minor coursework and no later than one full academic year before the expected date of graduation.

The EDCP Minor in Leadership Studies consists of **18 credit hours**. No more than six credits can also be applied to a student's major, and no more than six credits may be taken at an institution other than the University of Maryland College Park. No course with an earned grade below C may count towards the minor.

Required Courses:

- EDCP 217 - Introduction to Leadership
- EDCP 315 - Leadership in Groups and Organizations
- EDCP 318 - Applied Contextual Leadership
  OR
- EDCP 418 - Leadership and Identity
- EDCP 417 - Advanced Leadership Seminar

Elective Courses:
Students must choose two 3-credit courses, one at the 200 level and one at the 300 or 400 level, from an approved list of electives. See Beth Niehaus (0110 Stamp Student Union, eniehaus@um.edu) for the list of approved courses and additional details regarding the EDCP Minor in Leadership Studies.

Criminology & Criminal Justice (CCJS)

College of Behavioral and Social Sciences
2220 LeFrak Hall, 301-405-4699
www.ccjs.umd.edu
Chair: S. Simpson
Director: L. Brooks (Undergraduate Director)
Professors: D. Gottfredson, G. LaFree, J. Laub, D. Mackenzie, R. Paternoster, A. Piquero (Graduate Director), P. Reuter, C. Wellford
Associate Professors: L. Dugan, E. Wish
Assistant Professors: B. Johnson, D. Kirk, J. McGloin, H. Petras
Lecturers: T. Bonnar, A. Gaston, R. Hamill, J. Horner, A. Lehman, S. Malm, T. Mauriello, D. Salem, B. Smith, C. Roberts White, A. Zumbrun

The Major

The mission of the Department of Criminal Justice & Criminology is to provide a supportive academic and professional environment for faculty and students. The Department promotes study and teaching concerning crime and delinquency and their prevention and control. The University of Maryland's Department of Criminology and Criminal Justice is a national and international leader in research and criminal justice education, and its Graduate Program is ranked number one in the field. Courses offered by this department may be found under the following acronym: CCJS. Both UMCP and Shady Grove offer the CCJS Bachelor of Arts degree.

Program Learning Outcomes

Having completed the CCJS degree program, students should have acquired the following knowledge and skills:

1. Students will demonstrate basic knowledge of major criminology and criminal justice content areas.
2. Students will demonstrate a basic knowledge of descriptive and inferential statistics appropriate to the social sciences.
3. Students will demonstrate competence in basic social science research methods.

Admission to the Major

Admission to the Major

In accordance with University policy, the Department of Criminology and Criminal Justice has been designated a Limited Enrollment Program (LEP). All first-time freshmen admits who request Criminology and Criminal Justice will be directly admitted into the major. Other first-time freshman that wish to declare Criminology and Criminal Justice as a major prior to the last day of classes of the first semester in residence will be allowed to do so.

Students who arrived at UMD or a Maryland public institution prior to Fall 2009 will not be subject to LEP requirements until Fall 2011. Students who enrolled in a Maryland public institution Fall 2009 or later, or were previously enrolled in a Maryland private or non-Maryland public institution will be required to meet the terms of the LEP. All students regardless of matriculation date or place will be subject to LEP requirements in Fall 2011.

In order to remain a Criminology and Criminal Justice major, newly admitted freshman will be required to complete the following gateway/entrance requirements on or before the end of the semester in which they attempt 45 University of Maryland credits:

a. Completion of the University's Fundamental English Requirement (ENGL101)
b. Completion of CCJS100 with a grade of C (2.0) or higher
c. Completion of CCJS105 with a grade of C (2.0) or higher
d. Completion of MATH111 or MATH220 or MATH140 or STAT100 with a grade of C (2.0) or higher
e. A minimum cumulative GPA of 2.00

All other students, including both internal and external transfer students, will not be admitted to the program until they have met the following requirements:

a. Completion of the University's Fundamental English Requirement (ENGL101)
b. Completion of CCJS100 with a grade of C (2.0) or higher
c. Completion of CCJS105 with a grade of C (2.0) or higher
d. Completion of MATH111 or MATH220 or MATH140 or STAT100 with a grade of C (2.0) or higher
e. A minimum cumulative GPA based on all previous college-level coursework of 2.50 or higher

Policies for Limited Enrollment Programs:

- Only one gateway or entrance requirement course may be repeated to earn the required grade, and that course may be repeated only once.
- A grade of W (Withdrawn) in a course is counted as an attempt.
- Students may apply only once to a Limited Enrollment Program. Students who have been dismissed from the major may not reapply.
- Students must maintain a cumulative GPA of 2.00. Failure to do so will result in dismissal from the major.

Any student denied admission or dismissed from the major may appeal. Dismissed students appeal directly to the Director of Undergraduate Studies in Criminology and Criminal Justice. Internal transfer students appeal to the Office of the Dean for Behavioral and Social Sciences. External transfer students appeal to the Office of Admissions.

Requirements for the Major

The major in Criminology & Criminal Justice comprises 30 hours of coursework in criminology and criminal justice. Eighteen (18) hours of supporting sequence selected from a list of social and behavioral science courses are required (list is available in the CCJS advising office and on the department website). No grade lower than a C- may be used toward the major. An average grade of C is required in the supporting sequence. Nine (9) hours of the supporting sequence must be at the 300/400 level. In addition, MATH111 or higher (MATH220, MATH140 or STAT100, but not MATH113 or MATH115) and CCJS200 (or an approved course in social statistics) must be completed with a grade of 'C' or better. A grade of 'C' or better is required in MATH111 as a prerequisite to CCJS200.

	Major Requirements	**Credits**
CCJS100	Introduction to Criminal Justice	3
CCJS105	Criminology	3
CCJS230	Criminal Law in Action	3
CCJS300	Criminological and Criminal Justice Research Methods	3
CCJS340	Concepts of Law Enforcement Administration	3
CCJS350	Juvenile Delinquency	3
CCJS ELECT	CCJS Electives (3 courses)	9
	One from:	3
CCJS451	Crime and Delinquency Prevention	
CCJS452	Treatment of Criminals and Delinquents	
CCJS454	Contemporary Criminological Theory	
	Total credits	**30**

	Supporting Sequence	
SUPPORT	Lower or Upper level courses from approved list (3 courses)	9
SUPPORT UL	Upper level courses from approved list (3 courses)	9
	One from:	3-4
MATH111	Introduction to Probability	
MATH220	Elementary Calculus I	
MATH140	Calculus I	
STAT100	Elementary Statistics and Probability	

	One from:	3-4
CCJS200	Statistics for Criminology and Criminal Justice	
ECON321	Economic Statistics	
PSYC200	Statistical Methods in Psychology	
SOCY201	Introductory Statistics for Sociology	
BMGT230	Business Statistics	
	Total credits - Major and Supporting	**54**

	Electives for CCJS Majors (most courses are 3 credits):
CCJS234	Law of Criminal Investigation
CCJS310	Criminal Investigations
CCJS320	Introduction to Criminalistics
CCJS330	Contemporary Criminological Issues
CCJS331	Contemporary Legal Policy Issues
CCJS332	Major Transitions: From Undergraduate to Professional
CCJS352	Drugs and Crime
CCJS357	Industrial and Retail Security Administration
CCJS359	Field Training in Criminology and Corrections
CCJS360	Victimology
CCJS370	Race, Crime and Criminal Justice
CCJS386	Experiential Learning
CCJS388H	Independent Reading Course in Criminology and Criminal Justice - Honors
CCJS389H	Independent Research in Criminology and Criminal Justice - Honors
CCJS398	Law Enforcement and Field Training
CCJS399	Independent Study in Criminology and Criminal Justice
CCJS400	Criminal Courts
CCJS432	Law of Corrections
CCJS444	Advanced Law Enforcement Administration
CCJS451	Crime and Delinquency Prevention
CCJS452	Treatment of Criminals and Delinquents
CCJS453	White Collar and Organized Crime
CCJS454	Contemporary Criminological Theory
CCJS455	Dynamics of Planned Change in Criminal Justice I
CCJS456	Dynamics of Planned Change in Criminal Justice II
CCJS457	Comparative Criminology and Criminal Justice
CCJS461	Psychology of Criminal Behavior
CCJS462	Special Problems in Security Administration
CCJS498	Selected Topics in Criminology and Criminal Justice

Other Requirements for the Major

The CCJS Department enforces all prerequisites and does not oversubscribe students to courses that are closed.

Advising

All majors are strongly encouraged to see an advisor at least once each semester. Advising is available on a walk-in basis between 10 am and 4 pm weekdays in 2201 LeFrak Hall. Students must complete all course prerequisites and obtain department permission from CCJS Advising to enroll in most CCJS classes. Call 301-405-4729 or email advising@crim.umd.edu.

Internships

Requirements for Internship Placements

The internship must be a learning experience involving work in a criminal justice or criminological setting. Interns are expected to gain valuable information which will add to their overall understanding of the field of criminology and criminal justice. Internship positions must center around gaining new material over the course of the semester and are expected to involve some degree of ongoing training/learning for the intern. Internship placements are subject to the approval of the Internship Director.

Internship Eligibility

Interns must meet the following criteria:

- Interns must be CCJS majors
- Interns must have completed a minimum of 56 credits at the time of application
- Interns must have a cumulative GPA of at least 2.5 at the time of application
- Interns must work 40 hours per credit over the course of the semester
- A maximum of 6 internship credits per semester and a total of 12 internship credits overall will be permitted

- Internship credit will not be approved for current or previously held jobs

Interns must register themselves for the internship prior to the end of the semester's schedule adjustment period. Obtaining Departmental approval for the internship does NOT register the student for the class. Additional information about internships can be picked up from the CCJS advising office in 2201 LeFrak Hall or on line at www.ccjs.umd.edu/Undergrad/index.asp

Honors Program

The Honors Program is a four-semester (12 required credit hours) sequence, which a student begins in the fall semester of his or her junior year. The classes are in seminar format and are writing intensive. During the fall semester of their senior year, students will complete a thesis/research proposal. This paper will be 25-40 pages in length and must be orally defended. During the senior year, students must complete a graduate course, which can be taken during the Fall or Spring semester. Honors students may count their honors courses toward satisfaction of their major curriculum requirements.

Student Societies and Professional Organizations

There are two Student Societies available for membership for CCJS majors: the Criminal Justice Student Association (CJSA) and Alpha Phi Sigma Honor Society (APS).

The Criminal Justice Student Association (CJSA) is dedicated to supplementing our members' academic experience by providing extracurricular opportunities to further explore critical issues involving criminology and criminal justice. Through a regular program of speakers, agency demonstrations, community service projects and an annual career fair, the CJSA provides students with valuable information for making decisions about career choices, further graduate level study, and law school. The CJSA provides students with opportunities for academic and social interaction, and access to criminology and criminal justice researchers, teachers, and practitioners representing a variety of government, academic and commercial corporate and non-profit organizations. All graduate and undergraduate students, regardless of major, are eligible for membership in the CJSA. CJSA meetings and programs are held at least monthly during the Fall and Spring semesters. CJSA does not assess membership dues or fees.

Alpha Phi Sigma (APS) is a National Criminal Justice Honor Society founded 1942 and membership is open to CCJS majors who have completed at least 40 total credits with at least 12 credits in CCJS courses. Undergraduate Applicants must have an overall GPA of at least a 3.2 and a major GPA of at least 3.4. Graduate student applicants must have a 3.4 overall GPA. Applicants must fill out an application, submit an official or unofficial transcript, and a check (personal check is fine) made out to Alpha Phi Sigma for $55. The local chapter's name is Omega Iota. Put the completed application, check, and transcript in Dr. Brooks' mailbox inside 2220 Lefrak Hall. Applications are processed throughout the academic year. You will be notified when you have been officially accepted. Applications are available from the CCJS Advising Office in 2103 Lefrak Hall.

Awards and Recognition

Each semester the department selects the outstanding graduating senior for the Peter J. Lejins award.

Curriculum and Instruction - Elementary Education (EDCI)

College of Education
2311 Benjamin Building, 301-405-3324
www.education.umd.edu/EDCI
Chair: L. Valli (Interim)
Professors: P. Afflerbach, M. Dreher, D. Hammer, W. Holliday, D. Imig (Prof Of Practice), M. Johnson, S. Koziol (Assoc. Dean), J. McGinnis, R. Oxford, O. Saracho, D. Sullivan, B. VanSledright, T. Weible (Assoc Dean), D. Wiseman (Dean)
Associate Professors: P. Campbell, M. Chambliss, D. Chazan, A. Graeber (Emerita), V. MacDonald, J. McCaleb, J. O'Flahavan, W. Slater, J. Turner
Assistant Professors: A. Brantlinger, T. Brown, L. Clark, J. Coffey, A. Edwards, S. Hughes, M. Hyler, M. Martin-Beltran, C. Monte-Sano, C. North, M. Peercy, M. Stieff
Affiliate Professors: E. Redish
Affiliate Associate Professors: S. Benson, R. Lavine

The Major

The Department of Curriculum and Instruction offers an undergraduate curricula in elementary education that leads to the Bachelor of Science. Graduates of the Elementary Education program are prepared to teach grades 1 through 6.

Graduates of the Elementary Education program meet the requirements for certification in Maryland and additional states that are affiliated with the Interstate Reciprocity Agreement through the Maryland State Department of Education.

Program Learning Outcomes

1. Content Knowledge: Elementary Education teacher candidates have in-depth knowledge of the subject matter that they teach as described in professional (Association for Childhood Education International, ACEI), state (MSDE), and institutional standards.

2. Pedagogical and Professional Knowledge, Skills, and Dispositions: Elementary Education teacher candidates can effectively plan classroom-based instruction or activities for their roles as teachers. Candidates' knowledge, skills, and dispositions are applied effectively in practice.

3. Professional Dispositions: Elementary Education teacher candidates are able to work with students, families, and communities in ways that reflect the dispositions expected of professional educators as delineated in professional (ACEI), state (MSDE), and institutional standards.

Admission to the Major

Admission to the Teacher Education Professional Program is competitive. Admission procedures and criteria are explained in the College of Education entry.

Requirements for the Major

All Teacher Education Programs have designated pre-professional courses and a specified sequence of professional courses. Before students may enroll in courses identified as part of the professional sequence, they must complete the selective admission requirements and be fully admitted to the College of Education's Teacher Education Program. An overall grade point average of 2.5 must be maintained after admission to Teacher Education. All teacher candidates are required to obtain satisfactory evaluations on the College of Education Foundational Competencies/Technical Standards and to attain qualifying scores for the State of Maryland on the Praxis I and Praxis II assessments. Praxis I is required for admission, and Praxis II is required for student teaching and graduation. Student teaching is a yearlong internship, which takes place in a Collaborating School.

The Gateway Requirements for entrance into the Elementary Teacher Education program include:

		Credits
BIOSCI	Biological science/lab	4
PHY SCI	Physical science/lab	4
MATH212	Elements of Numbers and Operations	3
MATH213	Elements of Geometry and Measurement	3
EDCI280	Introduction to Teaching*	3

**minimum grade, B*

***NOTE:** The 14-16 credits of math and science must be completed with a minimum grade of C in each course and an overall GPA of 2.7.*

Courses which double count with CORE

Courses which may satisfy the university's general education requirements (CORE) and which are required in the Elementary Education program of studies follow:

		Credits
HIST156	History of the United States to 1865	3
BIO SCI	Biological Science/Lab	4
PHY SCI	Physical Science/Lab Gateway Requirements	4
SOC SCI	Social Science	3
	Recommended social science course options:	
GEOG100	Introduction to Geography	
GVPT170	American Government	
SOCY100	Introduction to Psychology	
PSYC100	Introduction to Sociology	

Other Pre-Professional Requirements:

		Credits
EDCI301	Teaching Art in the Elementary School, **OR**	3
ARTT100	Two Dimensional Art Fundamentals, **OR**	
ARTT110	Elements of Drawing	
EDCI443	Literature for Children and Youth	3
MATH214	Elements of Probability and Statistics	3
MUED155	Fundamentals for the Classroom Teacher	3
SOCY230	Sociological Social Psychology, **OR**	3
PSYC221	Social Psychology	
EDMS410	Classroom Assessment	3
EDPS301	Foundations of Education, **OR**	3
EDPS201	Education in Contemporary American Society, **OR**	
EDPS210	Historical and Philosophical Perspectives on Education	
EDHD411	Child Growth and Development	3
EDHD425	Language Development and Reading Acquisition	3
Area Crs	Area of Emphasis chosen from the following areas:	18
	Communication, Foreign Language, Literature, Mathematics, Science, and Social Studies**	

***The EDCI Advising Office has detailed information regarding each area of emphasis. All pre-professional course work must be completed with a C or better.*

Professional Education Courses:

		Credits
EDCI397	Principles and Methods of Teaching in Elementary Schools	3
EDCI385	Computers for Teachers	3
EDCI461	Materials for Creating Skilled and Motivated Readers (K-6)	3

Year Long Internship

		Credits
EDCI322	Curriculum and Instruction in Elementary Ed.: Social Studies	3

EDCI342	Curriculum and Instruction in Elementary Ed.: Language Arts	3
EDCI352	Curriculum and Instruction in Elementary Ed.: Mathematics	3
EDCI362	Curriculum and Instruction in Elementary Ed.: Reading	3
EDCI372	Curriculum and Instruction in Elementary Ed.: Science	3
EDCI488	Classroom Management	1
EDCI481	Student Teaching: Elementary	12
EDCI464	Reading Instruction and Diagnosis across Content Areas	3

NOTES:

- All pre-professional and professional courses must be completed with a grade of C or better.
- All courses must be completed before the year-long internship unless an exception has been approved by the EDCI Advising Office.
- A passing score on Praxis II is required before enrollment in student teaching.

Advising

Advising is mandatory for all students. Students receive advising through individual appointments or walk-in hours during the early registration period. Information regarding advising schedules is available each semester. Walk-in advising hours are also posted each semester. Check in the department office, 1207 Benjamin Building.

Internships

The yearlong internship, which is the culminating experience in the teacher preparation program, takes place in a collaborating school (i.e., partner school, PDS -- Professional Development School).

Scholarships and Financial Assistance

The Office of Student Financial Aid (OSFA) administers all types of federal, state and institutional financial assistance programs and, in cooperation with other university offices, participates in the awarding of scholarships to deserving students. For information, visit: www.financialaid.umd.edu.

The College of Education also offers a number of scholarships. For more information, see http://www.education.umd.edu/studentinfo/scholarships/index.html.

Curriculum and Instruction - Secondary Education (EDCI)

College of Education
2311 Benjamin Building, 301-405-3324
www.education.umd.edu/EDCI
Chair: L. Valli (Interim)
Professors: P. Afflerbach, M. Dreher, D. Hammer, W. Holliday, D. Imig (Prof Of Practice), M. Johnson, S. Koziol (Assoc. Dean), J. McGinnis, R. Oxford, O. Saracho, D. Sullivan, B. VanSledright, T. Weible (Assoc Dean), D. Wiseman (Dean)
Associate Professors: P. Campbell, M. Chambliss, D. Chazan, A. Graeber (Emerita), J. McCaleb, J. O'Flahavan, W. Slater, J. Turner
Assistant Professors: A. Brantlinger, T. Brown, I. Clark, J. Coffey, A. Edwards, S. Hughes, M. Hyler, M. Martin-Beltran, C. Monte-Sano, C. North, M. Peercy, M. Stieff
Affiliate Professors: E. Redish
Affiliate Associate Professors: S. Benson, R. Lavine

The Major

The Department of Curriculum and Instruction offers undergraduate curricula in secondary education that leads to the Bachelor of Science or Bachelor of Arts degree and prepares teachers in various subject areas for teaching in middle schools and secondary schools, grades 7-12.

The Department has multiple pathways for students who are interested in teaching at the secondary level:

The Dual Major option, which is designed for incoming freshmen or sophomores, leads to the Bachelor's degree with a major in an academic content area plus a second major in secondary education. All secondary majors are required to have an academic content major which satisfies the requirements of the academic department and meets the standards for teacher certification. Candidates who follow the proposed sequencing of courses can complete both majors in four years with careful advisement and scheduling.

The Department of Curriculum and Instruction also offers a five-year integrated master's with certification program. See www.education.umd.edu/EDCI/info/tcert.htm

Graduates of the Secondary Education programs meet the requirements for certification in Maryland and additional states that are affiliated with the Interstate Reciprocity Agreement through the Maryland State Department of Education.

Program Learning Outcomes

1. Content Knowledge: Teacher candidates have in-depth knowledge of the subject matter that they teach as described in professional, state, and institutional standards. They demonstrate their knowledge through inquiry, critical analysis, and synthesis of the subject.

2. Pedagogical and Professional Knowledge, Skills, and Dispositions: Teacher candidates can effectively plan classroom-based instruction or activities for their roles as teachers. Candidates' knowledge, skills, and dispositions are applied effectively in practice.

3. Professional Dispositions: Teacher candidates are able to work with students, families, and communities in ways that reflect the dispositions expected of professional educators as delineated in professional, state, and institutional standards.

Academic Programs and Departmental Facilities

In addition to the double major program, the department offers a Five-Year Integrated Master's with Certification Program (IMCP). This program, is intended for talented students with a minimum GPA of 3.0 who seek to combine undergraduate studies in the content area and professional education as a foundation for a focused professional year at the graduate level leading to secondary-level certification in the subject field and the Master's of Education degree. As undergraduates, students are double majors in both secondary education and their content area. While double majors, students complete a minimum of 12 credits in professional education studies related to teacher certification requirements. In their junior or senior year they apply to the graduate program. If they are admitted to the graduate program they enroll in a full-year internship. The students will also complete graduate-level professional studies that make them eligible for initial teacher certification and the master's of education degree.

Information about this secondary education program option is available at www.education.umd.edu/EDCI/info/tcert.htm

Admission to the Major

Admission to the Teacher Education Professional Program is competitive. Admission procedures and criteria are explained in the College of Education entry in Chapter 6.

Requirements for the Major

All Teacher Education Programs have designated pre-professional courses and a specified sequence of professional courses. Before students may enroll in professional education course requirements they must be fully admitted to the College of Education's Teacher Education Program. An overall grade point average of 2.5 must be maintained after admission to Teacher Education. All teacher candidates are required to obtain satisfactory evaluations on the College of Education Foundational Competencies/Technical Standards and to attain qualifying scores for the State of Maryland on the Praxis I (Math 177, Writing 173, Reading 177) and Praxis II assessments. Praxis I is required for admission, and Praxis II is required for student teaching and graduation. Student teaching is a yearlong internship, which takes place in a Collaborating School (i.e., partner school, PDS - Professional Development School).

The Department offers a variety of secondary education programs leading to the Bachelor of Science and Bachelor of Arts degrees. Students who complete a secondary education program at UM meet the Maryland State Department of Education requirements for the Professional Eligibility Certificate. Consult the Department of Curriculum and Instruction for updated information.

Foreign-Language Requirement, Bachelor of Arts Degree

Language proficiency may be demonstrated in one of several ways:

(a) Successful completion of level 4 in one language. Students must provide a high school transcript to verify exemption.

(b) Successful completion of an intermediate-level college foreign language course designated by the department.

(c) Students who have native proficiency in a language other than English may certify their native proficiency by taking an exam administered by the American Council on the Teaching of Foreign Languages. For more information, please see an advisor in the Arts and Humanities Office of Student Affairs, or call 301-405-2108.

Students who have native proficiency in a language other than English should see their content area advisor.

Art Education (pre K-12)

The Art Education curriculum is designed to prepare students to teach art in elementary through secondary schools. It provides prospective art teachers with a knowledge base about the theories and best practices relevant to effective pedagogy, as well as current education and art education goals and standards. Students admitted to Art Education complete the Bachelor of Arts and are required to have an academic content major.

For more information on the sequence of pre-professional and professional courses, consult the College of Education, Department of Curriculum and Instruction's advising office.

		Credits
	Pre-Professional/Subject Area Courses	
	Note: Course Sequencing is under review.	
ARTT150	Introduction to Art Theory	3
ARTT100	Two Dimensional Design Fundamentals	3
ARTT110	Elements of Drawing I	3
ARTH200	Art of the Western World to 1300	3
ARTH201	Art of the Western World after 1300	3
ARTT200	Three-Dimensional Art Fundamentals	3
ARTT210	Elements of Drawing II	3
ARTT320	Elements of Painting	3
ARTT418	Drawing	3
ARTT428	Painting	3
EDCI407	Practicum in Art Education: Three Dimensional *(Spring only)*	3
	One from:	3
ARTT340	Elements of Printmaking: Intaglio	
ARTT341	Elements of Printmaking: Woodcut and Relief	
ARTT342	Elements of Printmaking: Collagraphy	
ARTT343	Elements of Printmaking: Screen Printing	
ARTT344	Elements of Printmaking: Lithography	
	Pre-Professional/Education Courses	

EDHD413	Adolescent Development	3
EDHD426	Cognition & Motivation in Reading: Reading in Content Areas I	3
EDCI463	Reading in the Secondary School	3
	One from:	
EDPS301	Foundations of Education	3
EDPS201	Education in Contemporary American Society	
EDPS210	Historical and Philosophical Perspectives on Education	
	Professional Education Courses	
EDCI405	Art Education Methods I *(Spring only)*	3
EDSP470	Introduction to Special Education	3
EDCI403	Teaching Art Criticism and Aesthetics *(Fall only)*	3
EDCI400*	Field Experience in Art Education *(Fall only)*, **and**	1
EDCI423*	Art Education Methods II *(Fall only)*	3
EDCI406	Technology and Two-Dimensional Art *(Fall only)*	3
EDCI401	Student Teaching in Elementary School: Art	6
EDCI402	Student Teaching in Secondary Schools: Art	6
EDCI474	Inclusion, Diversity and Professionalism in Secondary Education	2
EDCI488	Selected Topics in Teacher Education (Student Teaching Seminar, Art)	1
	**EDCI400 and EDCI423 taken concurrently*	

English Education (Grades 7-12)

Students who complete the English Education curriculum receive the Bachelor of Arts degree and meet the MSDE requirements for the Professional Eligibility Certificate. Students admitted to English Education are required to have an academic content major and must complete the following program requirements. Please check with the ENGL department regarding specific coursework.

		Credits
	Pre-Professional/Subject Area Courses	
FRGN LANG	Foreign Language *(Intermediate mastery of a modern or classical language is required.)*	8
ENGL280	Introduction to English Language	3
ENGL301	Critical Methods in the Study of Literature	3
ENGL399	Senior Seminar	3
	One from:	3
COMM107	Oral Communication: Principles and Practices	
COMM125	Introduction to Interpersonal Communication	
COMM220	Small Group Discussion	
	One from:	3
COMM230	Argumentation and Debate	
COMM330	Argumentation and Public Policy	
COMM383	Urban Communication	
COMM402	Communication Theory and Process	
	One from:	3
ENGL101*	Introduction to Writing	
ENGL101H*	Honors Composition	
	One from:	3
ENGL201	Western World Literature, Homer to the Renaissance	
ENGL202	Western World Literature, Renaissance to the Present	
	One from:	3
ENGL304	The Major Works of Shakespeare	

ENGL403	Shakespeare: The Early Works	
ENGL404	Shakespeare: The Later Works	
	One from:	3
ENGL384	Concepts of Grammar	
ENGL383	The Uses of Language	
ENGL385	English Semantics	
ENGL482	History of the English Language	
ENGL483	American English	
ENGL484	Advanced English Grammar	
ENGL486	Introduction to Old English	
ENGL489	Special Topics in English Language	
	One from:	3
ENGL391	Advanced Composition	
ENGL393	English Technical Writing	
ENGL493	Advanced Expository Writing	
	One from:	
ENGL487	Foundations of Rhetoric	3
COMM360	The Rhetoric of Black America	
COMM401	Interpreting Strategic Discourse	
COMM453	The Power of Discourse in American Life	
	British and American Literature:	15
	one upper-level course in each of five out of the following six areas to be taken during the sophomore and junior years; one of these five courses must be in American Literature (15 credits total)	
	1. Medieval Literature	
	2. Renaissance Literature other than Shakespeare	
	3. Restoration or 18th Century Literature	
	4. 19th Century British Literature	
	5. American Literature before 1900	
	6. 20th Century British or American Literature	
	Elective:	
ENGL	ENGL Elective Women or Minority course	3
	**If exempt from ENGL101, majors are required to take ENGL391 Intermediate Writing or ENGL394 Introduction to Creative Writing.*	

Pre-Professional/Education Courses

EDHD413	Adolescent Development	3
EDHD426	Cognition & Motivation in Reading: Reading in Content Areas I	3
EDCI463	Reading in the Secondary School	3
	One from:	3
EDPS301	Foundations of Education	
EDPS201	Education in Contemporary American Society	
EDPS210	Historical and Philosophical Perspectives on Education	

Professional Education Courses

EDCI466	Literature for Adolescents *(Spring only)*	3
EDCI467	Teaching Writing *(Fall only, Senior Year)*	3
EDCI416	Curriculum and Instruction in Secondary Education: English, Speech, Theater *(Fall only, Junior Year)*	3
EDCI417*	EDCI417 Bases for English Language Instruction *(Fall only, Senior Year)*	3

EDCI447*	EDCI447 Field Experience in English Teaching	1
EDCI440**	EDCI440 Student Teaching Seminar in Secondary Education: English	1
EDCI441**	Student Teaching in Secondary Schools: English	12
EDCI474	Inclusion, Diversity and Professionalism in Secondary Education	2
	**EDCI417 and EDCI447 taken concurrently*	
	***EDCI440 and EDCI441 taken concurrently*	

For more information on the sequence of pre-professional and professional courses, consult the College of Education, Department of Curriculum and Instruction (Room 1207, Benjamin).

Foreign Language Education (Grades 7-12)

The Foreign Language (FL) Education curriculum is designed for prospective foreign language teachers in grades 7-12 who have been admitted to the EDCI Teacher Education Program. Currently, admission is open to qualified students seeking teacher certification in Spanish, French, Russian, Italian, Chinese and German. Other languages might be added later for teacher certification. Students enrolled in foreign language education are required to have an academic content major. Consult with an advisor in the Department of Curriculum and Instruction for further information.

A minimum of six hours of intermediate-level language course work in the student's major language must precede the required 300-400 level courses. The latter are comprised of a minimum of 30 hours of prescribed course work that includes the areas of reading strategies, grammar and composition, conversation, literature, civilization and culture, and linguistics. Students must also take a minimum of nine hours (three courses) of electives in a related area. The second area of concentration must be approved by a FL advisor.

In addition to all coursework, students must earn an Intermediate High score on the ACTFL oral proficiency exam in their corresponding foreign language. Students in Russian, Italian, and Chinese must also earn an Intermediate High score on the ACTFL written proficiency test.

The following requirements must be met with the FL Education program:

		Credits
	Pre-Professional/Subject Area Courses	
Primary FL Area	Intermediate (200 level) courses	6
Primary FL Area	Reading Strategies	3
Primary FL Area	Grammar and Composition (300-400 levels)	6
Primary FL Area	Survey of Literature (300-400 levels)	6
Primary FL Area	Conversation (300-400 levels)	3
Primary FL Area	Literature (400-above levels)	6
Primary FL Area	Culture and Civilization	6
Primary FL Area	Applied Linguistics, OR	3
LING200*	Introductory Linguistics	
ELECTIVES	Electives in Supporting Area/FL-Related Courses (minimum of three courses)	9
	**Applied Linguistics in the Primary FL Area if available; otherwise LING200 may satisfy this requirement; check with your advisor.*	

In almost all instances, Primary FL Area courses must have been completed prior to the Student Teaching semester. Any substitutions for the above must be pre-approved by a FL Education Advisor.

Note: *The pre-professional courses vary by subject area. Consult the academic department for the specific course requirements for each language area.*

		Credits
	Pre-Professional/Education Courses	
EDHD413	Adolescent Development	3
EDHD426	Cognition & Motivation in Reading: Reading in Content Areas I	3
EDCI463	Reading in the Secondary School	3
	One from:	3
EDPS301	Foundations of Education	
EDPS201	Education in Contemporary American Society	
EDPS210	Historical and Philosophical Perspectives on Education	
	Professional Education Courses	
EDCI410	Curriculum and Instruction in Secondary Education: Foreign Language *(Fall only)*	3

EDCI433	Introduction to Foreign Language Methods *(Fall only)*	3
EDCI438	Field Experience in Second Language Education *(Fall only)*	1
EDCI488	Student Teaching Seminar in Secondary Education: Foreign Language	1
EDCI431	Student Teaching in Secondary Schools: Foreign Language	12
EDCI474	Inclusion, Diversity, and Professionalism in Secondary Education	1

Mathematics Education (Grades 7-12)

Students who wish to be certified to teach mathematics at the secondary level and who have not yet been accepted into the College of Education must complete the requirements for the Mathematics Major - Secondary Education Track. Please check with the mathematics department for specific math courses to be taken.

		Credits
	Pre-Professional/Education Courses	
EDHD413	Adolescent Development	3
EDHD426	Cognition & Motivation in Reading: Reading in Content Areas I	3
EDCI463	Reading in the Secondary School	3
	One from:	3
EDPS301	Foundations of Education	
EDPS201	Education in Contemporary American Society	
EDPS210	Historical and Philosophical Perspectives on Education	
	Professional Education Courses	
EDCI457	Teaching and Learning Middle School Mathematics *(Fall only, Junior Year)*	3
EDCI455	Methods of Teaching Mathematics in Secondary Schools *(Fall only, Senior Year)*	3
EDCI355	Field Experience in Secondary Mathematics Education *(Fall only, Senior Year)*	1
EDCI450	Student Teaching Seminar in Secondary Education: Mathematics	1
EDCI488	Selected Topics in Teacher Education (Student Teaching: Mathematics)	12
EDCI474	Inclusion, Diversity, and Professionalism in Secondary Education	2

Science Education (Grades 7-12)

Please check with the science department regarding specific course work.

Students may earn credentials in biology, chemistry, geology, physics or agriculture. All students admitted to the secondary program in science education must complete a major in their area of specialization. Students should consult the respective departments for requirements. For more information, please see www.education.umd.edu/science.

		Credits
	Pre-Professional Education Courses	
EDHD426	Cognition & Motivation in Reading: Reading in Content Areas I	3
EDHD413	Adolescent Development	3
EDCI463	Reading in the Secondary School	3
	One from:	3
EDPS301	Foundations of Education	
EDPS201	Education in Contemporary American Society	
EDPS210	Historical and Philosophical Perspectives on Education	
	Professional Education Courses	

	All areas of science education will be required to complete the following professional education courses:	
EDCI411	Knowledge, Reasoning, and Learning in Science *(Fall only)*	3
EDCI375	Field Experience in Science Education	1
EDCI470	Practices of Teaching Science *(Fall only, Senior Year)*	3
EDCI471	Student Teaching in Secondary Schools: Science	12
EDCI474	Inclusion, Diversity, and Professionalism in Secondary Education	2
EDCI488	Selected Topics in Teacher Education (Student Teaching Seminar: Science)	1-3

Social Studies Education (Grades 7-12)

The Social Studies Education program is under review. Contact an advisor in 1207 Benjamin Building for updated program information.

Students in the Social Studies Education program may select an area of concentration in history, geography, or government and politics. Each concentration follows the general requirements of their respective majors in addition to the pre-professional/subject area supporting course work required for certification. Students may elect to complete the program for certification in Social Studies by choosing one of three options for completing the program.

Option I: History
This option requires completion of the foreign language requirement and is primarily for those students earning their initial degree. Requires 68 semester hours of which 39 credit hours must be in history.

Note:The history major requires completion of UNIV 101 and a foreign language requirement through the intermediate level. See ARHU advising for details.

		Credits
	Pre-Professional/Subject Area Courses	
	Introductory Courses:	
HIST156	History of the United States to 1865 (CORE: SH)	3
HIST157	History of the United States since 1865 (CORE: SH)	3
HIST100/200	Non-US, prior to 1500 *(see advisor for approved courses)*	3
HIST208	Historical Research and Methods Seminar	3
HIST408	Proseminar in Historical Writing	3
	History Electives	24
	Out of a total 24 credits :	
HIST	*18 credits must be at the junior/senior level	
	*15 credits must be in a concentration	
	* one course must be non-Western	
	In addition to the required credit hours in history, the social studies education program requires 29 credit hours of course work in geography and the social sciences as outlined below.	
GEOG100	Introduction to Geography	
GEOG201	Geography of Environmental Systems (CORE: PL)	3
GEOG211	Geography of Environmental Systems Laboratory	1
SOCY/ANTH	one Sociology or Anthropology course	3
ECON200	Principles of Micro-Economics	4
ECON	ECON Elective	3
	One from:	
GVPT100	Principles of Government and Politics (CORE: SB), or	3
GVPT260	State and Local Government, or	
GVPT280	Comparative Politics and Governments	
GVPT170	American Government (CORE: SB)	3
HIST100/200	HIST (non-Western 100/200 level)	3
ELECTIVE	History/Social Science Elective - 300-400 level	6
Ethnic/ Minority	One course in Ethnic Minority Studies (U.S. orientation); can be one of the above courses in social sciences or history	3

	Pre-Professional/Education Courses	
EDPS301	Foundations of Education, or	3
EDPS201	Education in Contemporary American Society, or	
EDPS210	Historical and Philosophical Perspectives on Education	
EDHD413	Adolescent Development	3
EDHD426	Cognition & Motivation in Reading: Reading in the Content Areas I	3
EDCI463	Reading in the Secondary School	3
	Professional Education Courses	
EDCI426	Materials & Resources in Social Studies *(Fall only, Junior Year)*	3
EDCI427*	Curriculum and Instruction in Secondary Education - Social Studies *(Fall only, Senior Year)*	3
EDCI428*	Field Experience in Secondary Social Studies Teaching *(Fall only)*	1
EDCI421	Student Teaching in Secondary Schools: Social Studies	12
EDCI474	Inclusion, Diversity, and Professionalism in Secondary Education	2
EDCI488	Selected Topics in Teacher Education (Student Teaching Seminar: Social Studies)	1
	*EDCI 427 and EDCI428 are taken concurrently	

Option II: Geography

This option is primarily for those students earning their initial degree and requires sixty credit hours of Pre-professional/Subject Area course work. Thirty-five credit hours must be in geography. Nine credit hours of 300 level Gateway courses must be taken in physical geography, human geography, and geographic techniques. The remaining 18 credit hours must include a quantitative methods course and 15 credit hours of upper level systematic geography courses.

		Credits
	Pre-Professional/Subject Area Courses	
	Primary Courses:	
GEOG201	Geography of Environmental Systems (CORE: PL)	3
GEOG211	Geography of Environmental Systems Laboratory	1
GEOG202	Introduction to Human Geography	3
GEOG212	Introduction to Human Geography Laboratory	1
	Gateway Courses:	
GEOG3xx	one 300 level physical geography course	3
GEOG3xx	one 300 level human geography course	3
GEOG3xx	one 300 level technique course	3
GEOG3xx/4xx	Upper Level Geography Electives	15
GEOG306	Introduction to Quantitative Methods for the Geographic Environmental Sciences	3
	In addition to the required credit hours in geography, the social studies education program requires 28 credit hours of course work in history and the social sciences as outlined below.	
SOCY/ANTH	one Sociology or Anthropology course	3
ECON200	Principles of Micro-Economics	4
ECON	ECON Elective	3
GVPT100	Principles of Government and Politics (CORE: SB), or	3
GVPT260	State and Local Government, or	
GVPT280	Comparative Politics and Governments	
GVPT170	American Government (CORE: SB)	3
HIST156	History of the United States to 1865, or	3
HIST157	History of the United States since 1865	
HIST100/200	HIST (non-Western 100/200 level) (3)	3

ELECT	History/Social Science Elective 300-400 level	6
Ethnic/ Minority	One course in Ethnic Minority Studies (U.S. orientation); can be one of the above courses in social sciences or history.	3
	Pre-Professional/Education Courses	
EDPS301	Foundations of Education, or	3
EDPS201	Education in Contemporary American Society, or	
EDPS210	Historical and Philosophical Perspectives on Education	
EDHD413	Adolescent Development	3
EDHD426	Cognition&Motivation in Reading:Reading in the Content Areas I	3
EDCI463	Reading in the Secondary School	3
	Professional Education Courses	
EDCI426	Materials & Resources in Social Studies *(Fall only, Junior Year)*	3
EDCI427*	Curriculum and Instruction in Secondary Education - Social Studies *(Fall only, Senior Year)*	3
EDCI428*	Field Experience in Secondary Social Studies Teaching *(Fall only)*	1
EDCI421	Student Teaching in Secondary Schools: Social Studies	12
EDCI474	Inclusion, Diversity, and Professionalism in Secondary Education	2
EDCI488	Selected Topics in Teacher Education (Student Teaching Seminar: Social Studies)	1
	**EDCI 427 and EDCI428 are taken concurrently*	

Option III: Government and Politics

The Government and Politics program is under review. Please check with the Government Department regarding specific course work. This option is primarily for those students earning their initial degree. Requires a minimum of 65 credit hours of preprofessional/subject area course work. Thirty-six hours must be in GVPT. At least eighteen of the thirty-six credit hours must be upper-level courses.

All GVPT majors must also complete an approved skills option (a foreign language or three quantitative courses from a select list - see GVPT advising office.)

In addition, the GVPT program is a Limited Enrollment Program (LEP). See GVPT advisor for specific admission requirements.

		Credits
	Pre-Professional/Subject Area Courses	
	Introductory Courses:	
GVPT100	Principles of Government and Politics (CORE: SB)	3
GVPT170	American Government (CORE: SB)	3
GVPT241	The Study of Political Philosophy: Ancient and Modern	3
ELECTIVES	GVPT Electives	9
GVPT3xx/4xx	GVPT Upper Level Courses	18
	Social Science Quantitative Courses or Foreign Language (see GVPT advisor)	
	In addition to the required credit hours in GVPT, the social studies education program requires 26 credit hours of course work in history and the social sciences as outlined below.	
HIST156 or	History of the United States to 1865, or	3
HIST157	History of the United States since 1865	
HIST100/200	Non-Western History 100/200 level	3
SOCY/ANTH	Sociology or Anthropology course	3
ECON200	Principles of Micro-Economics	4
ECON	ECON Elective	3
GEOG3xx/4xx	Upper Level GEOG, or	3

HIST3xx/4xx	Upper Level HIST	
GEOG201	Geography of Environmental Systems (CORE: PL)	3
GEOG211	Geography of Environmental Systems Laboratory	1
GEOG100	Introduction to Geography (CORE: SB)	3
Ethnic/ Minority	One course in Ethnic Minority Studies (U.S. orientation); can be one of the above courses in social sciences or history	3
	Pre-Professional/Education Courses	
EDPS301	Foundations of Education, or	3
EDPS201	Education in Contemporary American Society, or	
EDPS210	Historical and Philosophical Perspectives on Education	
EDHD413	Adolescent Development	3
EDHD426	Cognition & Motivation in Reading: Reading in the Content Areas I	3
EDCI463	Reading in the Secondary School	3
	Professional Education Courses	
EDCI426	Materials & Resources in Social Studies *(Fall only, Junior Year)*	3
EDCI427*	Curriculum and Instruction in Secondary Education - Social Studies *(Fall only, Senior Year)*	3
EDCI428*	Field Experience in Secondary Social Studies Teaching *(Fall only)*	1
EDCI421	Student Teaching in Secondary Schools: Social Studies	12
EDCI474	Inclusion, Diversity, and Professionalism in Secondary Education	2
EDCI488	Selected Topics in Teacher Education (Student Teaching Seminar: Social Studies)	1
	**EDCI 427 and EDCI428 are taken concurrently*	

Requirements for the Minor

Requirements for the Minor Secondary Education

The Minor in Secondary Education provides opportunities for undergraduate subject area majors to enroll in a sequence of education courses that helps them to determine if teaching is a viable career option for them. The 15 credit minor may be taken prior to admission into a teacher preparation program. If an undergraduate student pursuing or completing the minor desires to enter an education track, the candidate must apply for the dual major program to obtain certification as a secondary education classroom teacher through completion of a Maryland State Department of Education approved program option. Some of the courses students take to complete the Minor in Secondary Education may also be applicable in certification options at the graduate level offered through the Department of Curriculum and Instruction. These students should consult with an advisor in the Department of Curriculum and Instruction to identify the most appropriate option leading to teacher certification and to review the specific admission requirements associated with these programs.

Requirements for the Minor in TESOL

The minor in Second Language Education provides opportunities for undergraduate subject area majors to complete a sequence of courses that helps them prepare for careers as teachers of English as a second language in US schools and/or prepare them for roles as teachers of English as a foreign language in international settings. It includes coursework from the Department of Curriculum and Instruction and the Department of Human Development. The curriculum provides a foundation in second language learning and pedagogy, adolescent learning, cross-cultural issues and understanding, and curricular and pedagogical issues which support reading and writing in a second language context. Several of the courses include field components that provide candidates with direct experience in working with second language learners. The minor incorporates coursework required for TESOL certification from the Maryland State Department of Education.

Certificate

Secondary Education Upper Division Certificate

The Certificate Program is currently under review. Please check with an advisor for more information on this and other pathways to certification.

Advising

Advising is mandatory for all students. Students receive advising through individual appointments or walk-in hours during the early registration period. Information regarding advising schedules is available each semester. Walk-in advising hours are also posted each semester. Check in the department office, 1207 Benjamin Building.

Internships

The yearlong internship, which is the culminating experience in the teacher preparation program, takes place in a collaborating school (i.e., partner school, PDS -- Professional Development School).

Scholarships and Financial Assistance

The Office of Student Financial Aid (OSFA) administers all types of federal, state and institutional financial assistance programs and, in cooperation with other university offices, participates in the awarding of scholarships to deserving students. For information, visit: www.financialaid.umd.edu.

The College of Education also offers a number of scholarships. For more information, see http://www.education.umd.edu/studentinfo/scholarships/index.html.

Dance (DANC)

College of Arts and Humanities
1920 Clarice Smith Performing Arts Center, 301-405-3180
www.dance.umd.edu
Chair: D. MacLean Wagner (Acting Chair)
Professors: M. Rosen, A. Warren
Associate Professors: K. Bradley
Assistant Professors: S. Mansur (Asst Prof)
Instructors: A. Mayes
Lecturers: P. Jackson
Professors Emeriti: D. Madden, L. Warren, A. Wiltz

The Major

The undergraduate curriculum, which leads toward a B.A. degree in Dance, is designed to facilitate the acquisition of new movement skills, enhance creativity, and develop scholarly insights in the field. Comprehensive studio and theory courses provide a foundation for a range of careers in dance. Students may choose to study a particular aspect of dance in depth, such as performance, choreography, or production; or they may choose to merge their interest in dance with an interest in another field of study. Graduates of the program pursue graduate work in dance as well as careers as professional dancers and choreographers, university and secondary school teachers, dance managers, and dance critics. They also work in the fields of dance medicine and therapy.

The dance faculty is composed of a number of distinguished teachers, choreographers, and performers, each one a specialist in his or her own field. Visiting artists throughout the year make additional contributions to the program. There are performance and choreographic opportunities for all dance students, ranging from informal workshops to fully mounted concerts both on and off campus.

Requirements for the Major

Students must complete 57 semester hours of dance credits. Of these, 18 hours of modern technique at the Dance 248 level and above, and four hours of ballet technique at the Dance 228 level and above are required. The remaining 35 credits must be distributed as follows:

		Credits
DANC102	Rhythmic Training	2
DANC109	Improvisation	2
DANC200	Introduction to Dance	3
DANC210	Dance Production	3
DANC208	Choreography I	3
DANC308	Choreography II	3
DANC388	Choreography III	3
DANC305	Principles of Teaching	3
DANC370	Kinesiology for Dancers	4
DANC466	Laban Movement Analysis	3
DANC483	Dance History II	3
DANC485	Seminar in Dance	3

A grade of C or higher must be attained in all dance courses.

New, re-entering, and transfer students are expected to contact the department following admission to the university for instructions regarding advising and registration procedures. Although entrance auditions are not required, some previous dance experience is highly desirable.

Advising

Departmental advising is mandatory each semester.

DECISION, OPERATIONS AND INFORMATION TECHNOLOGIES (BMGT)

The Robert H. Smith School of Business
1570 Van Munching Hall, 301-405-2286
www.rhsmith.umd.edu/undergrad
Chair: H. Lucas
Professors: R. Agarwal, G. Anandalingam, M. Ball, M. Fu, B. Golden, H. Lucas, L. Raschid, D. Riley
Associate Professors: F. Alt, J. Bailey (Res Assoc Prof), Z. Chen, C. Dellarocas, W. Elmaghraby, I. Hann (Assoc Prof), W. Jank, S. Raghavan, G. Shmueli, G. Souza, K. Stewart, S. Viswanathan
Assistant Professors: G. Gao, A. Gopal, S. Gosain, M. Goyal, I. Karaesmen-Aydin, M. Kumar, A. Mishra, S. Mithas, X. Wang, Y. Xu (Asst Prof)
Lecturers: B. Corwin, S. Lele, K. Ruhi (Tyser Teaching Fellow), J. Suarez (Tyser Teaching Fellow), P. Weiss (Tyser Teaching Fellow)
Professors Emeriti: L. Bodin, S. Gass
Visiting Faculty: H. Ibrahim (Distinguished Tyser Teaching Fellow), K. Prasad, E. Studer-Ellis (Distinguished Tyser Teaching Fellow)

The Major

The Department of Decision, Operations, and Information Technologies offers two majors: Information Systems - Specialization:Business, and Operations Management.

Information Systems - Specialization: Business

The Business Area of Concentration in the Information Systems (IS) program prepares students to be effective planners, users and managers of information technologies and systems in the current environment of the technology-enabled business firm. The IS major focuses on the system design and implementation skills including database and web design, analytical skills for both strategic planning of IT and performance evaluation, and the managerial plus organizational knowledge required to manage information systems and applications based on business and customer requirements. The major's core emphasizes the concepts of systems analysis and design, and the strategic use of information systems. In addition to a broad grounding in the key functional areas of marketing, operations, accounting, and finance, this major develops in-depth knowledge of information systems design and implementation, evaluation and planning of information technology investments, and managing dynamic technology projects.

Operations Management

Operations Management involves the design and management of an organization's systems and processes focusing on the creation and delivery of products and services. This includes such functions as capacity planning, inventory management, logistics management, production planning and control, resource allocation and total quality. Career opportunities exist in consulting, manufacturing, retailing, service organizations and government.

Admission to the Major

See Robert H. Smith School of Business entry in chapter 6 for admission requirements.

Requirements for the Major

Information Systems - Specialization: Business

	Major Requirements	**Credits**
BMGT302	Business Computer Application Programming	3
BMGT402	Database Systems	3
BMGT403	Systems Analysis and Design	3
BMGT407	Information Systems Projects	3
	Two courses from list 'A' or one course from 'A' and one course from list 'B':	6
	List A	
BMGT405	Business Telecommunications	
BMGT406	Electronic Commerce Application Development	
BMGT408	Selected Topics in Decision & Info. Tech. *(repeatable if content differs)*	
BMGT326	Accounting Systems	
BMGT476	Applied Computer Models in Supply Chain Management	
BMGT484	Electronic Marketing	
	List B	
BMGT332	Operations Research for Management Decisions	
BMGT385	Operations Management	
BMGT430	Linear Statistical Models in Business	
BMGT434	Introduction to Optimization	
BMGT485	Project Management	
BMGT486	Total Quality Management	
	Total credits required	18
	Upper Level Economics Requirements	
	one of the following courses:	3
ECON305	Intermediate Macroeconomic Theory and Policy	
ECON306	Intermediate Microeconomic Theory	
ECON330	Money and Banking	
ECON340	International Economics	
	Total ECON	3

Operations Management

Students pursuing the Operations Management major must complete MATH 220 or MATH 140 and BMGT 230 or 231 prior to junior standing; and those interested in graduate work in this field are strongly advised to complete MATH 141, MATH 240 and 241 as well.

The course requirements for the junior-senior curriculum concentration in Operations Management are as follows:

		Credits
	Major Requirements	
BMGT332	Operations Research for Management Decisions	3
BMGT385	Operations Management	3
BMGT485	Project Management	3
	One of the following courses (check prerequisites):	3
BMGT430	Linear Statistical Models in Business	
BMGT434	Introduction to Optimization	
BMGT435	Business Process Simulation	
	Two of the following courses (check prerequisites):	6

BMGT430	Linear Statistical Models in Business	
BMGT434	Introduction to Optimization	
BMGT435	Business Process Simulation	
BMGT372	Introduction to Logistics and Supply Chain Management	
BMGT403	Systems Analysis and Design	
BMGT486	Total Quality Management*	
BMGT487	Six Sigma Innovation*	
BMGT490H	The Total Quality Practicum *(Open only to QUEST students)*	
	Total BMGT	18
	Upper Level ECON Requirements	
	One of the following courses:	3
ECON305	Intermediate Macroeconomic Theory & Policy	
ECON306	Intermediate Microeconomic Theory	
ECON330	Money and Banking	
ECON340	International Economics	
	Total ECON	3
	**students take either BMGT486 or BMGT487; not both*	

In addition to the major requirements listed above, please consult Chapter 6 or www.rhsmith.umd.edu for a listing of additional Smith School degree requirements that apply to all Smith School majors.

Dietetics

For more information see Nutrition and Food Science in Chapter 7.

East Asian Languages, Literatures and Cultures (EALL)

For information see the listing for the School of Languages, Literatures and Cultures in this chapter.

East Asian Studies Certificate

College of Arts and Humanities
2101B Francis Scott Key Hall, 301-405-4309

The Undergraduate Certificate in East Asian Studies is a 24-credit course of instruction designed to provide specialized knowledge of the cultures, histories, and contemporary concerns of the peoples of China, Japan, and Korea. It will complement and enrich a student's major. The curriculum focuses on language instruction, civilization courses, and electives in several departments and programs of the university. It is designed specifically for students who wish to expand their knowledge of East Asia and demonstrate to prospective employers, the public, and graduate and professional schools a special competence and set of skills in East Asian affairs.

Upon satisfactory completion of the courses, with a grade of C or better in each course, and recommendation by the Coordinator of the Certificate Program, a certificate will be awarded. A notation of the award of the certificate will be included on the student's transcript. The student must have a bachelor's degree awarded by Maryland (must be College Park campus) previous to or simultaneously with an award of the certificate.

Certificate Requirements

CORE Courses: The student is required to take:

1. HIST 284 East Asian Civilization I
2. HIST 285 East Asian Civilization II
3. Six semester hours of introduction to one of the following East Asian languages (Chinese, Japanese, or Korean):

    CHIN 101 Elementary Chinese I
    JAPN 101 Elementary Japanese I
    KORA 101 Elementary Korean I
    KORA 102 Elementary Korean II
    KORA 211 Introductory Reading for Speakers of Korean I
    KORA 212 Introductory Reading for Speakers of Korean II

Students with language competence equivalent to these language courses are exempted from the language requirement; such students are required to complete an additional six hours of electives in East Asian courses to fulfill the 24-credit requirement for the certificate.

Electives: Students must complete at least 12 hours of electives selected from four regular approved courses on East Asia in such disciplines as: (1) anthropology, (2) art history, (3) ethnomusicology, (4) government and politics, (5) history, (6) language, linguistics, and literature, (7) plant science and landscape architecture, and (8) women's studies. Nine of the 12 hours of electives must be upper division (300-400 level courses). A maximum of three credit hours of special topics courses on East Asia will be allowed with the approval of the certificate coordinator. No more than nine credits from any one department or from the student's major may be applied toward the certificate. In addition, no more than nine credits of the courses applied toward the certificate may be transferred from other institutions. Students are asked to work with the coordinator in ensuring that the electives maintain an intercollegiate and interdisciplinary focus (at least three disciplines are recommended). Interested students should contact the Coordinator of the Certificate Program, Dr. Lindsay Yotsukura, Japanese Program, School of Languages, Literatures, and Cultures, 2106F Jimenez Hall, ly@umd.edu (website at www.ceas.umd.edu).

Economics (ECON)

College of Behavioral and Social Sciences
3105 Tydings Hall, 301-405-3505
www.bsos.umd.edu/econ
Chair: P. Murrell
Director: C. Clement (Director of Undergraduate Studies)
Professors: L. Ausubel, P. Cramton, M. Cropper, A. Drazen, M. Duggan, J. Haltiwanger, J. Ham, C. Hulten, E. Mendoza, E. Montgomery, P. Murrell, W. Oates, I. Prucha, C. Reinhart, J. Rust, T. Schelling (Dist Univ Prof), R. Schwab, M. Straszheim, C. Vegh (Director of Undergraduate Honors), D. Vincent, J. Wallis
Associate Professors: J. Chao, P. Coughlin, J. Hellerstein, Z. Jin, N. Limao, J. Shea
Assistant Professors: S. Aruoba, S. Chugh, P. D'Erasmo, R. Guiterras, M. Kearney, A. Korinek, J. LaFortune, C. McKelvey, E. Ozbay, E. Filiz Ozbay, S.Lee, R. Soares, R. Vlaicu
Lecturers: D. Bakardzhieva, A. Gandhi, R. Haas, B. Lowrey, D. Meade, J. Neri, S. Ver Ploeg, J. Sabelhaus, K. Short, J. Tang, H. Terrell, L. Tiehen, J. Werling
Professors Emeriti: C. Almon, R. Bennett, B. Bergmann, R. Betancourt, F. Brechling, C.Harris, C. Clague, J. Cumberland, R. Dardis, J. Dorsey, H. Kelejian, M. McGuire, P. Meyer, D. O'Connell, M. Polakoff, P. Wonnacott

The Major

Economists study a wide range of phenomena using analytical methods which describe how people and collections of people behave and interact. Many economists define their profession as the analysis of decisions made in the context of scarcity. Economics can also be described as the study of the production, pricing, and distribution of goods and services within societies. Economists study such problems as inflation, unemployment, poverty, environmental quality, financial markets, and international trade. Economists also apply their methods of analysis to such diverse areas as crime, health care, discrimination, and the problems of developing countries.

Courses offered by this department may be found under the following acronym: ECON. As a large, diverse department, courses are offered in all of the major fields of economic study. Many courses analyze the role of the government and public policies impacting economic outcomes, while others focus on developing advanced applications of economic theories and methodologies.

The program is designed to serve both majors and non-majors. The department offers a variety of 300-level courses on particular economic issues which can be taken after two semesters of principles. The program for majors is designed to serve those who will seek employment immediately after college as well as those who will pursue graduate study. Economics majors have a wide variety of career options, including positions in state and local government, federal and international agencies, business, finance and banking, journalism, teaching, politics and law. Many economics majors pursue graduate work in economics or another social science, law, business or public policy.

Program Learning Outcomes

Students are expected to fully utilize the opportunities presented for learning and research. Having completed the degree program, students should have acquired the following knowledge and skills:

1. Understanding of the key terminology used within the discipline.
2. Ability to use the fundamental methods and tools of the discipline to model economic behavior and to describe and analyze relationships between economic variables.
3. Ability to interpret and apply descriptive and inferential statistics.
4. Ability to analyze the effect of government policies on the economy using both conceptual and quantitative tools.

Requirements for the Major

In addition to the university's general education (CORE) requirements, students who declare Economics as a major during the Spring 2007 semester or thereafter must earn a minimum of 38 credits via a combination of foundation and elective courses in Economics and Math as listed below. Economics majors must also complete a minimum of 15 credits in supporting courses. All courses must be passed with a grade of C or better to count towards the foundation, elective, and supporting requirements. A course used to fulfill one requirement for the major may not count towards any other major requirement. Students should see a departmental advisor for guidance on choosing between various options, especially if future plans include graduate training in economics. Students who declared Economics before Spring 2007, can choose to follow these new requirements OR the previous requirements. See a departmental advisor for details.

Foundation Courses		**Credits**
ECON200	Principles of Micro-Economics	4
ECON201	Principles of Macro-Economics	4
MATH220	Elementary Calculus I **or**	3
MATH140	Calculus I	4
ECON300*	Methods & Tools for Economic Analysis	3
ECON321	Economic Statistics **or**	3
STAT400	Applied Probability and Statistics	3
ECON326	Intermediate Macroeconomic Theory & Policy	3
ECON325	Intermediate Microeconomic Theory	3

Economics Electives Courses

*One from*** ECON310	European Economic History	3
ECON311	American Economic History Before the Civil War	
ECON312	American Economic History After the Civil War	
ECON314	Economic History, Development and Policy	
ECON315	Economic Development of Underdeveloped Areas	
ECON317	Global Economic Policies	
ECON412	Economic History and Modern Development	
ECON416	Theory of Economic Development	
*One from*** ECON402	Economic Models and Forecasting	3

ECON414	Game Theory	
ECON422	Econometrics I	
ECON424	Computer Methods in Economics	
ECON425	Mathematical Economics	
Three from		
ECON4xx	Any 400 level Economics courses	9

**With permission from the department a major may substitute a math course (MATH 240 or MATH 241) for ECON 300.*

*** The Economics curriculum may be updated over time, given college and campus approval. Students will be notified as other appropriate courses are approved that fulfill the requirements for the major.*

Supporting Courses:

Support - UL	Upper level courses - see NOTES below	15

NOTES:

- Excludes Junior English writing class, internships, experiential learning other than ECON386, and 'non-traditional' courses.
- Additional mathematics courses beyond the required mathematics course (MATH 220 or 140) except MATH274 (History of Mathematics) may be counted as fulfilling the Additional Support Course Requirement.
- Additional economics courses may be included among the 15 hours of supporting courses.
- All supporting courses must be approved by an Economics Department Advisor.
- All courses meeting the Additional Supporting Course requirement must be completed with a grade of C or better and may not be taken pass-fail, except ECON386 which can only be taken pass-fail.

Other Requirements for the Major

Study Sequences and Plans of Study

Economics is an analytical discipline, building on a core of principles, modeling methodologies, and statistical techniques. Students must begin with a foundation in mathematics and economic principles (ECON 200 and ECON 201). A more advanced, analytic treatment is presented in intermediate theory courses (ECON 325 and ECON 326), which provide necessary background for in-depth study of any specific issues, such as those covered in the upper level courses. Empirical research and the use of computers are becoming increasingly important in economics. All students are well advised to include as many statistics, econometrics, and quantitative methods courses in their curriculum as possible.

Students interested in economics as preparation for a career in business, law, or policy-making and analysis, should visit the department's website for suggestions on specific upper-level courses to satisfy the elective requirements for the major.

Those students planning to pursue graduate study in economics must begin to prepare themselves analytically for graduate work by focusing on theory, statistics, and mathematics in their undergraduate curriculum. These students should consider the full econometrics sequence of ECON 422 and 423. Mastery of the calculus and linear algebra is essential for entrance into graduate schools, and therefore students must take MATH 140, MATH 141, MATH 240, MATH 241 and MATH 246. Students should also plan on taking MATH 410 and 411.

Benchmarks: Students declaring Economics as their major must meet satisfactory progress benchmarks for the major. These benchmarks are not applicable to all freshmen declaring Economics as their major; these students should meet with an advisor to set appropriate expectations and an academic plan for their Economics course work. Otherwise, Economics majors must complete (with a grade of "C" or higher) ECON200, ECON201, MATH220 or 140, and ECON300 within 2 semesters of entering the major. The College also requires the completion of four CORE Distributive Studies courses (which can include ECON200, ECON201, and Calculus), as well as the English Fundamental Studies requirement.

In addition to the benchmark courses included above, students must complete ECON326 and ECON321 (with a grade of "C" or higher) within three semesters of entering the major.

Advising

Departmental academic advisors work with current and prospective majors on a walk-in basis. Majors are encouraged to see an advisor at least once an academic year to verify progress in their program requirements. Further information on courses, internships, the department honors program, careers, and graduate schools may be obtained from the advisors.

Location: 3127 Tydings Hall
Phone contacts: 301-405-3513; 301-405-7845; 301-405-3503

Honors Program

The Economics Honors Program provides economics majors with the opportunity for advanced study in a seminar format, with faculty supervision of seminar papers and an honors thesis. The Honors Program is designed for students intending to attend graduate school or those seeking an in-depth study of economic theory and its application to economic problems.

The Honors Program is a 12-hour sequence, culminating in the completion of a senior thesis. Students must complete ECON 422 prior to their senior year. Students must also complete ECON 396 (Honors Workshop - fall term) and ECON 397 (Honors Thesis - spring term) in their senior year. To complete the program, any one of the following four courses can be taken concurrently or prior to the honors workshop and thesis: ECON 407, 414, 423, 425.

To be eligible for admission, a student must have completed 15 hours of economics with a GPA of 3.25. Interested students should meet with the Director of Undergraduate Studies at the earliest possible date to review their curriculum plans and to apply for admission to the program.

Student Societies and Professional Organizations

Omicron Delta Epsilon is the economics honorary society. Please see the Undergraduate Economics Advisors in 3127 Tydings for membership information.

The Economics Association of Maryland is an undergraduate club that meets regularly to discuss graduate study in economics and other fields, employment opportunities, and recent economic trends. Please see the Undergraduate Economics Advisors in 3127 Tydings for more information.

Awards and Recognition

The Dudley and Louisa Dillard Prize is awarded to the outstanding Economics junior and senior with a broad liberal arts program.

The Sujon Guha Prize is awarded to the best Honors Thesis in Economics.

The Martin Moskowitz Awards provides scholarships to students based on academic excellence, financial need, and a demonstrated commitment to and philosophy of public service.

The Moskowitz Family Scholarship is awarded to an academically successful economics major with demonstrated financial need.

The Mark Sullivan Scholarship is awarded to an economics major who came from the eastern part of the state and has high academic performance.

The Honorable Idamae Garrott Memorial Scholarship supports academically talented majors who demonstrate financial need.

Education Policy Studies (EDPS)

College of Education
2110 Benjamin Building, 301-405-3570
www.education.umd.edu/EDPS
Chair: F. Hultgren, Professor and Chair (Interim)
Professors: B. Finkelstein, B. Malen, S. Selden
Associate Professors: R. Croninger, D. Herschbach, J. Rice
Professors Emeriti: L. Berman, J. Splaine

The Major

While the department does not have an undergraduate major, it does offer a number of courses which are open to undergraduates and are suggested for students interested in studying the role of education in society or considering graduate work in education policy studies. Particular courses of interest include Foundations of Education, Education in Contemporary American Society, and Historical and Philosophical Perspectives in Education.

Electrical Engineering (ENEE)

A. James Clark School of Engineering
2429 A.V. Williams Building, 301-405-3685
www.ece.umd.edu
eceadvise@deans.umd.edu
Chair: P. O'Shea (Professor)
Professors: E. Abed, T. Antonsen, J. Baras, D. Barbe, A. Barg, S. Bhattacharyya, G. Blankenship (Associate Chair External Relations, R. Chellappa (Distinguished Scholar Teacher), N. De Claris, M. Dagenais, C. Davis (Distinguished Scholar Teacher), A. Ephremides, C. Espy-Wilson, N. Farvardin, R. Ghodssi, J. Goldhar, N. Goldsman, R. Gomez, V. Granatstein, P. Ho, A. Iliadis, J. JaJa, J. Kim (Prof Of Practice), P. Krishnaprasad, W. Lawson (Associate Chair, Undergraduate Studies), K. Liu (Associate Chair, Graduate Studies, Distinguished Scholar Teacher), A. Makowski, S. Marcus (Distinguished Scholar Teacher), I. Mayergoyz (Distinguished Scholar Teacher), J. Melngailis, H. Milchberg (Distinguished Scholar Teacher), K. Nakajima, P. Narayan, R. Newcomb, Y. Oruc, E. Ott (Distinguished University Professor), M. Peckerar, H. Rabin, V. Gligor Res {Prof, S. Shamma, M. Shayman, A. Tits, T. Venkatesan (Res Prof), U. Vishkin, C. Yang
Associate Professors: P. Abshire, R. Barua, P. Dowd (Res Assoc Prof), M. Franklin, T. Horiuchi, B. Jacob, R. La, T. Murphy, A. Papamarcou, G. Qu, C. Silio, J. Simon, A. Srivastava, S. Ulukus, M. Wu, D. Yeung
Assistant Professors: N. Martins, P. Petrov, K. Rosfjord, E. Waks
Lecturers: W. Hawkins
Affiliate Professors: A. Agrawala, S. Anlage, L. Davis, H. Frank, M. Fu, J. Hollingsworth, D. O'Leary, G. Rubloff, F. Wellstood
Affiliate Associate Professors: J. Bernstein, S. Bhattacharjee, R. Phaneuf, E. Smela
Affiliate Assistant Professors: R. Duraiswami, M. Hicks, J. Katz, R. Shekhar
Adjunct Assistant Professors: M. Cukier
Professors Emeriti: L. Davisson, F. Emad, R. Harger, C. Lee, W. Levine, P. Ligomenides, H. Lin, J. Orloff, J. Pugsley, M. Reiser, M. Rhee, C. Striffler, L. Taylor, S. Tretter, K. Zaki

The Major

The Electrical Engineering (EE) major is intended to give students a solid foundation in the science and engineering disciplines, to teach them how to continue to learn in an ever-changing technological world, and to prepare them to function as responsible citizens and ethical, professional engineers in today's global society. In addition to technical instruction, both depth and breadth are required in the humanities and social sciences to understand the economic, ecologic, and human factors involved in reaching the best solutions to today's problems.The basic foundation in mathematical, physical, and engineering sciences is established in the first two years of the curriculum. A core of required EE courses in the third year is followed by a flexible structure of electives that allows for either breadth or specialization. A required capstone design course, where every student integrates knowledge from previous classes is the culmination of each student's educational experience. Appropriate choices of electives can prepare an EE major for advanced studies in graduate school, a career as a practicing engineer, or for a career in some other discipline such as medicine, law, or business, where an EE degree can be highly beneficial. Areas stressed in the major include signal processing and communication systems, computer systems, control systems, engineering electromagnetics, microelectronics, and power systems. Within these areas are courses in such topics as medical devices, neural networks, solid state and nano-electronics, integrated circuits, lasers, wireless communication networks, computer and embedded system design, power electronics and system design, digital signal processing, digital control systems, and computer security. Courses offered by this department may be found under the following acronym: ENEE.

Program Objectives

The educational objectives are broadly stated goals agreed upon by a consensus of the faculty pertaining to accomplishments or level of achievement desired of our students 3-5 years after graduation. These fall under the following four headings:

1. Technical Knowledge: Graduate engineers trained in the fundamentals of electrical engineering and relevant specialties so they are prepared to succeed in graduate school and/or be productive engineers in government or industry.

2. Laboratory, Design, and Research: Graduate engineers who can design and perform experimental projects to solve diverse problems, with special emphasis on exploiting diverse technical knowledge and skills so they can engage in design work or research.

3. Preparation for Further Study: Graduate engineers who have the educational foundations and skills necessary to engage in lifelong learning in every sphere of their life.

4. Professionalism: Graduate engineers who have the professional skills they need to succeed in their chosen profession and are prepared to fulfill their professional

responsibilities as engineers, which include their ethical obligations to society, employers, employees, and fellow engineers.

Program Learning Outcomes

Educational Opportunities

The program offers many educational opportunities. Most of these are designed to impart knowledge and skills required of all our students so that by the time of graduation they are prepared to achieve the Educational Objectives. Other opportunities are optional and offered for interested and qualified students. The educational opportunities are:

1. Broad Foundation: Understanding of and ability to apply relevant mathematical, scientific, and basic engineering knowledge.
2. Disciplinary Foundation: Understanding of and ability to apply core electrical engineering technical knowledge.
3. Specialization: Understanding of and ability to apply the skills and concepts within one or more of the specializations within electrical engineering.
4. Laboratory: Understanding of and ability to employ standard experimental techniques to generate and analyze data as well as use state-of-the-art software and instrumentation to solve electrical engineering problems.
5. Design: Theoretical understanding of and ability to engage in the creative design process through the integration and application of diverse technical knowledge and expertise to meet customer needs and address social issues.
6. Research: Ability to formulate and answer empirical and theoretical questions through participation in undergraduate research projects for interested and qualified students.
7. Leadership: Awareness of the need for engineering leaders both within the profession and the larger community, as well as some preparation to assume those leadership roles.
8. Communication Skills: Ability to communicate effectively both through oral presentations and the written word.
9. Interpersonal Skills: Ability to interact professionally with others in the workplace, to engage effectively in teamwork, and to function productively on multidisciplinary group projects.
10. Engineering Ethics: Understanding of the engineer's responsibilities to employers, society, and their fellow engineers as well as an ability to recognize potential and actual ethical problems, analyze critically those situations, and formulate sound ethical decisions.
11. Engineering & Society: Understanding of the symbiotic relationship between engineering and society specifically, how engineering artifacts are shaped by and incorporate human values as well as the ways in which engineering solutions impact society and the larger social obligations this entails for engineers.
12. Life-long Learning: Skills necessary to engage in life-long learning and an understanding of the need to continually exploit those skills in refining and updating one's knowledge base.

Admission to the Major

Admission requirements are the same as those of other departments in theSchool of Engineering. See Admission Requirements for A. James Clark School of Engineering in Chapter 6.

Requirements for the Major

Requirements for the Electrical Engineering major include thorough preparation in mathematics, physics, chemistry, and engineering science. Elective courses must include both Electrical Engineering courses and technical courses outside the department. Students must earn a grade of 'C' or higher in all engineering, mathematics, and science courses, as well as the prerequisites for these courses. A sample program is shown below.

		Credits	**Credits**
	Freshman Year	**First Sem**	**Second Sem**
CHEM135	General Chemistry for Engineers	3	
PHYS161	General Physics		3
MATH140/141	Calculus I / Calculus II	4	4
ENES100	Intro. To Engineering Design	3	
ENEE140*	Intro. To Programming Concepts for Engineering	2	
ENEE150	Intermediate Programming Concepts for Engineers		3
CORE**	CORE General Education	3	3
	Total	**15**	**13**

		Credits	**Credits**
	Sophomore Year++	**First Sem**	**Second Sem**
MATH241	Calculus III	4	
MATH246	Differential Equations	3	
PHYS260/261	General Physics II and Lab	4	
PHYS270/271	General Physics III and Lab		4
ENEE222	Elements of Discrete Signal Analysis		4
ENEE244	Digital Logic Design	3	
ENEE205	Electric Circuits		4
ENEE200**	Social & Ethical Dimensions of ECE Technology		3
CORE**	CORE General Education	3	
	Total	**17**	**15**

	Junior Year	Credits First Sem	Credits Second Sem
MATH4xx***	Advanced Elective Math		3
ENEE303	Analog and Digital Electronics	3	
ENEE307	Electronics Circuits Design Lab	2	
ENEE313	Intro. to Device Physics	3	
ENEE322	Signal and System Theory	3	
ENEE324	Engineering Probability		3
ENEE350	Computer Organization		3
ENEE380	Electromagnetic Theory	3	
ENEE381	Electromagnetic Wave Program		3
CORE**	CORE General Education		3
	Total	**14**	**15**

	Senior Year	Credits First Sem	Credits Second Sem
ELECTIVE	EE Electives	7	6
ELECTIVE	Free Technical Electives****	3	6
ENGL393	Technical Writing	3	
CORE**	CORE General Education	3	3
	Total	**16**	**15**

++ Effective with the Fall 2009 freshmen admit class, students will be required to follow the new curriculum above. Students enrolled prior to Fall 2009 or students enrolled in parallel programs at other 2 and 4 year institutions should follow the old requirements. However, records will be reviewed when necessary on an individual basis during the phase in/out period, and adjustments made in degree requirements.

*Students must complete ENEE 140 or pass the exemption exam or AP CS exam before taking ENEE 150.

** Note: Schedule assumes one CORE class satisfies the CORE Cultural Diversity requirement and ENEE 200 is used as a CORE IE to satisfy one of the distributive studies requirements.

***Must come from list of approved Math courses within free technical elective list.

****Must come from list of courses approved for free technical electives with at least two elective EE courses taken from the same specialty area.

Technical Elective Requirements

Effective Fall 2008, all entering BSEE students must:

1. Distribute their 13 credits of EE technical electives among the following course categories:

    Category A. Advanced Theory and Applications: minimum of 3 credits
    Category B. Advanced Laboratory: minimum of 2 credits
    Category C. Capstone Design: minimum of 3 credits

Note: ENEE 499, Senior Projects in Electrical and Computer Engineering,may be used to satisfy either the Category A or the Category B requirement subject to approval by the faculty supervisor and the Associate Chair; it cannot be used as a Category C course. The maximum number of ENEE 499 credits that may be applied towards EE technical elective requirements is five.

2. Distribute their 9 credits of free technical electives as follows:

    a. They may be any upper-level course (300 level or higher) from the math, engineering, and basic science disciplines whose courses start with the following prefixes and who do not appear on the list of unacceptable courses available from the Undergraduate Studies Office:AMSC, BCHM, BIOE, BSCI, CHEM, CMSC, ENAE, ENCE, ENCH, ENEE, ENES, ENFP, ENMA, ENME, ENNU, ENRE, MATH, PHYS, and STAT. The most up-to-date list of approved and unacceptable courses will always be available from the Undergraduate Studies Office and on the ECE website.

    b. They may be any upper-level course (300 level or higher) whose prefix is not given in the list above, assuming that the student: (i) completes the application to allow the course to count as a free elective, (ii) demonstrates how this course complements the student's professional goals, and (iii) receives the signed approval of the Associate Chair for Undergraduate Education. If more than one course is taken via this option, all of those courses must have a closely-related theme.

3. Have two courses from the same ENEE specialty area. A list of courses grouped according to specialty area is available from the Undergraduate Studies Office and on the ECE website.

If you have any questions about how these requirements affect your current selection of senior EE electives, please contact an advisor.

Technical electives for students admitted Spring 2001 - Spring 2008:

The 13 credits of EE technical electives among the following course categories:

		Credits
Category A	Advanced Theory and Applications	minimum of 3

Category B	Advanced Laboratory	minimum of 2
Category C	Capstone Design	minimum of 3

Please read carefully, and make a note of, the following special cases and other items:

1. Two credits of ENEE 499, Senior Projects in Electrical and Computer Engineering, may be used to satisfy the Advanced Laboratory requirement subject to approval by the faculty supervisor and the Associate Chair. The maximum number of ENEE 499 credits that may be applied towards EE technical elective requirements is five.

2. Additional Capstone Design courses can be used as substitutes for

   - the required Advanced Theory and Applications course; and/or
   - the required Advanced Laboratory course, provided one of the following is completed: ENEE 408A, 408B, 408C, or 408F.

3. Completion of ENEE 408A and ENEE 459A satisfies both the Capstone Design and Advanced Laboratory requirements.

4. If you have any questions on how these requirements affect your current selection of senior EE electives, please contact an advisor.

Advising

All faculty in Electrical and Computer Engineering function as undergraduate mentors, and every student is assigned a mentor in their first semester in the major. Additional advising is done by the Associate Chair for Undergraduate Studies, the Director and Associate Director of Undergraduate Studies, and other professsional staff members . Departmental approval is required for registration in all courses in the major. The department's Undergraduate Office (2429 A.V. Williams Building, 301-405-3685) is the contact point for undergraduate advising questions.

Undergraduate Research Experiences

The Department of Electrical and Computer Engineering is affiliated with more than 40 specialized laboratories, supporting activities including: speech and image processing, high performance systems, mobile computing and multimedia, communication networks, robotics, control systems, neural systems, systems integration, VLSI design and testing, experimental software engineering, semiconductor materials and devices, photonics, fiber optics, ion beam lithography, real-time systems, human- computer interaction, and virtual reality. Undergraduate students are encouraged to engage in research at some point during their education. Active participation in research not only allows students to apply what they have learned in class, it also gives them greater insight into a specific area within ECE and an appreciation for the subtleties and difficulties associated with the production of knowledge and fundamental new applications. Research experience also prepares students for the demands of graduate school and the work force. Information on participating in undergraduate research can be found atwww.ece.umd.edu/Academic/U www.ece.umd.edu/Academic/Under/advising/ENEE499.html.

he ECE department also offers unique summer research internship programs. The Maryland Engineering Research Internship Team program offers research opportunities for top undergraduates across the country who are interested in using electrical engineering skills and tools to address important biosystems applications. The Training and Research Experiences in Nonlinear Dynamics program offers research opportunities for students interested in nonlinear dynamics. The students participate in cutting edge, team-based research, technical and educational seminars, and field trips to local industry. It is possible for students to earn academic credit for these experiences.

Internships

Information on internships can be found at www.coop.eng.umd.edu.

Co-op Programs

Participation in a Cooperative Education Program or in an internship with private industry or a government agency is strongly encouraged. See the A. James Clark School of Engineering entry for details.

Honors Program

The Electrical and Computer Engineering Honors Program is intended to provide a more challenging and rewarding undergraduate experience for students pursuing the baccalaureate in Electrical or Computer Engineering. The program requires students to complete honors versions of four junior level electrical engineering courses and an honors project during the senior year. Students completing all program requirements with a 'B' average (3.0 on a 4.0 scale) and a cumulative GPA of 3.0 for all undergraduate work will have their participation noted on their B.S. diploma. Students are invited to enroll in the program after admission to the university. An additional opportunity for students to enroll occurs after the completion of their sophomore year.

Student Societies and Professional Organizations

The ECE Department has an active Student Chapter of the Institute of Electrical and Electronics Engineers (IEEE). Information and instructions for joining can be found at www.ieee.ece.umd.edu. Equally active is the chapter of Eta Kappa Nu, the nationwide Electrical Engineering honorary society. Information on eligibility can be obtained at www.hknum.edu.org.The ECE Undergraduate Student Council is an autonomous body that hosts undergraduate events, provides feedback to the Department and oversees the undergraduate study lounge. Visit www.ece.umd.edu/eceusc/index.html for details. Additionally, there is also a program for Women in Electrical and Computer Engineering (WECE) and a group called the Leaders in ECE, who serve as our ambassadors, give insight to new and prospective students, and participate in departmental events such as our "International Day" when we celebrate the cultural diversity of the students and faculty in our department.

Scholarships and Financial Assistance

Several corporate scholarships are administered through the department. All students must complete the College of Engineering 's online scholarship application by May 1 each year to be considered for all College of Engineering and Electrical and Computer Engineering Departmental scholarships for the following academic year. For information visit www.ursp.umd.edu/scholarships/index.html.

Job Opportunities

Electrical engineers were primarily responsible for the recent revolutions in the music and telecommunications industries. They remain at the forefront of cutting edge developments and innovations in nanotechnology, robotics, and other technologies. Electrical engineers also have wide ranging employment opportunities in other fields including electronics, microelectronics, communications and signal processing, power systems, electrophysics, computer architecture, circuits, antennas, and control systems. Specific jobs include developing fiber optic technology, lasers for biomedical applications, software for robots, electronic weapons systems, advanced wireless networks, and neuron-like sensors for various applications.

Awards and Recognition

The Department of Electrical and Computer Engineering offers the following awards: 1. Outstanding academic performance award to a junior for academic excellence, 2. Service award to the graduating senior who has shown a committment to service to fellow students.3. Chair's Award for outstanding academic performance to a graduating senior.

Job Opportunities

Electrical engineers were primarily responsible for the recent revolutions in the music, telecommunications and medical device industries. They remain at the forefront of cutting edge developments and innovations in nanotechnology, robotics, and other technologies. Electrical engineers also have wide ranging employment opportunities in other fields including electronics, microelectronics, communications and signal processing, power systems, electrophysics, computer architecture, circuits, and control systems. Specific jobs include developing fiber optic technology, lasers for biomedical applications, software for robots, electronic weapons systems, advanced wireless networks, and neuron-like sensors for various applications.

Engineering, Bachelor of Science (ENGR)

A. James Clark School of Engineering
1131 Glenn L. Martin Hall, 301-405-3936
www.eng.umd.edu
:

The Major

All undergraduates in engineering will typically select their major field sponsoring department by the end of their second year regardless of whether they plan to proceed to a designated or undesignated degree. A student wishing to elect the B.S. Engineering degree program may do so at any time following the completion of the sophomore year, or a minimum of 50 earned credits towards any engineering degree, and at least one semester prior to the time the student expects to receive the baccalaureate. Once the student elects to seek a B.S.Engineering degree, the student's curriculum planning, guidance, and counseling will be the responsibility of the B.S. Engineering Degree Program Advisor in the primary field department.

The student must file an Application for Admission to Candidacy for the Degree of Bachelor of Science in Engineering with the Office of Undergraduate Advising and Academic Support of the A. James Clark School of Engineering. The candidacy form must be approved by the chair of the primary field department, the primary engineering and secondary field advisors, and the college faculty committee on B.S. Engineering Degree Programs. This committee has the responsibility for implementing all approved policies pertaining to this program and for reviewing/acting on candidacy forms filed by students. Specific university and school academic regulations apply to this B.S. Engineering degree program in the same manner as they apply to the conventional designated degree programs. For example, the academic regulations of the university apply and the school requirement of a 2.0 GPA or better and a grade of C or better in all engineering courses. For the purpose of implementing such academic rules, the credits in the primary engineering field and the credits in the secondary field are considered to count as the major for such academic purposes.

Program Objectives

The B.S. Engineering Program has the following objectives:

- To prepare students who do not wish to follow a professional career in a traditional engineering field but rather plan to use the breadth and depth of their engineering education as preparation for entry into post-baccalaureate study or careers in such fields as medicine, law, or business administration.
- To prepare those students who do not intend to pursue a career in a traditional engineering field but rather want to use a more broad curriculum in order to gain a professional auxiliary or management position after graduation.
- The program is designed to give the student maximum flexibility to design an academic program which is specific to the student's career goals.

Program Learning Outcomes

- Ability to apply knowledge of mathematics, science, and engineering
- Understanding of the multidisciplinary nature of the combination of the engineering and non-engineering fields of the curriculum
- Understanding of professional and ethical responsibility

Requirements for the Major

Minimum Requirements

Listed below are the minimum requirements for the B.S. Engineering (Applied Science Option). Students are required to complete the freshman and sophomore requirements in the chosen primary engineering field and the general education requirements as outlined by the university and the Clark School of Engineering. The student, thus, does not make a decision whether to take the designated or the undesignated degree in an engineering field until the beginning of the junior year. In fact, the student can probably delay the decision until the spring term of the junior year with little or no sacrifice, thus affording ample time for decision-making. The program may be taken on the regular four-year format or under the Maryland Plan for Cooperative Engineering Education.

Engineering Option

The B.S. Engineering (Engineering Option) has been discontinued, effective Fall 2006.

Applied Science Option

The applied science option, which is not ABET-accredited, should be particularly attractive to those students who do not plan to pursue a professional engineering career but wish to use the rational and developmental abilities fostered by an engineering education as a means of furthering career objectives. Graduates of the applied science option may aspire to graduate work and an ultimate career in a field of science, law, medicine, business, or a variety of other attractive opportunities which build on a combination of engineering and a field of science. Entrance requirements for law and medical schools can be met readily under the format of this program. In the applied science program, any field in the university in which the student may earn a B.S. degree is an acceptable secondary science field, thus affording the student a maximum flexibility of choice for personal career planning. The secondary field, however, cannot be another engineering discipline.

Credits

Mathematics/Physical Science Requirements[3]	3
Engineering Sciences[2,3]	3
Primary Field[1]	24
Secondary Field[1]	12

Major Field or related electives[2]	3
Approved electives[3,5]	9
Senior research project[4]	3
Total credits	**51**

Engineering fields of concentration available under the B.S. Engineering program as primary field are: aerospace engineering, bioengineering, chemical engineering, civil engineering, computer engineering, electrical engineering, fire protection engineering, materials engineering and mechanical engineering.

[1] All courses used to fulfill the primary and secondary fields of concentration must be at the 300- and 400-level.
[2] Engineering courses are courses offered by the Clark School of Engineering which have a prefix beginning with EN (e.g., ENES, ENME, ENEE, etc.). These elective courses may be in a student's primary or secondary field of concentration.
[3] At least 50 percent of the elective courses (mathematics, physical sciences, engineering sciences, approved electives) must be at the 300- or 400-level.
[4] Students are required to complete 15 credits of approved electives which include a senior-level project or research assignment relating to the engineering and science fields of concentration, unless specifically excused.
[5] Approved electives should be selected to strengthen the students program consistent with career objectives. Courses in the primary or secondary fields of concentration may be used to satisfy the approved electives requirement.
[6] In the applied science option, the approved electives should be selected to strengthen the student's program consistent with career objectives. Courses in the primary or secondary fields of concentration may be used to satisfy the approved electives requirement.

Advising

Advising is mandatory for all students in the program. The student must see his/her primary (engineering) field advisor prior to registering for courses in the next semester.

Internships

Internships are available for students in the program. Refer to the A. James Clark School of Engineering section of the catalog.

Co-op Programs

Co-op positions are available for students in the program. Refer to the A. James Clark School of Engineering section of the catalog.

Scholarships and Financial Assistance

The Office of Student Financial Aid (OSFA) administers all types of federal, state and institutional financial assistance programs and, in cooperation with other university offices, participates in the awarding of scholarships to deserving students. For information, visit: www.financialaid.umd.edu.

Students are also eligible for School scholarships. See the A. James Clark School of Engineering section of the catalog for scholarship information.

English (ENGL)

College of Arts and Humanities
1128 Tawes Hall, (301) 405-3825
www.english.umd.edu
english@umd.edu
Chair: K. Cartwright
Director: T. Moser
Professors: J. Auchard, J. Auerbach, A. Berlin, C. Caramello, V. Carretta, K. Cartwright, W. Cohen, T. Coletti, M. Collier, M. Collins, R. Cross, J. Donawerth, J. Fahnestock, V. Flieger, N. Fraistat, M. Grossman, D. Hamilton, R. Harrison, L. Kauffman, T. Leinwand, R. Levine, S. Logan, E. Loizeaux, M. Mack, H. Norman, B. Pearson, C. Peterson, S. Plumly, S. Ray, B. Richardson, L. Rosenthal, M. Smith, M. Washington, D. Wyatt
Associate Professors: E. Arnold, R. Bauer, M. Casey, M. Chico, K. Chuh, L. Coleman, M. Israel, S. Jelen, M. Kirschenbaum, M. Lindemann, P. Mallios, T. Moser, Z. Nunes, O. Wang, J. Weiner
Assistant Professors: E. Bearden, K. Coles, M. Feitell, K. Kraus, W. Lewis, K. Macharia, R. Ontiveros, G. Passannante, J. Rudy, C. Rutherford, V. Valiavitcharska, C. Walter
Lecturers: L. Chartock, L. Macri, G. Metcalf, M. Olmert, E. Robinson, L. Ryan
Professors Emeriti: J. Barry, V. Beauchamp, J. Bryer, R. Coogan, S. Cooper, M. Freedman, G. Fry, G. Hamilton, E. Hammond, H. Herman, N. Isaacs, R. Jellema, R. Kolker, L. Lawson, S. Leonardi, M. Marcuse, W. Peterson, J. Salamanca, M. Trousdale, R. Vitzthum, C. Winton

The Major

The English major has three parts: English 301, Group I Requirements, and Group II Requirements. Group I Requirements provide a broad foundation in literary history and an awareness of questions an inquiring reader might ask of a text. Group II Requirements explore in greater depth both literary periods and literary themes across periods, and develop skills in reading, criticism, writing, and research.

- The major requires 36 credits beyond the University's Fundamental Studies requirement. At least 30 of the 36 credits must be at the 300- or 400-level; at least 12 credits must be 400-level.
- A "C" or better is required in each course making up the 36 credits of the major.
- Three credits of ENGL388 (Internship) may be included in the 36 credits of the major.
- Only 6 credits of ENGL429 (Independent Study) may be included in the 36 credits of the major.
- Only 9 credits of ENGL379 (Special Topics) may be included in the 36 credits of the major.
- Only 9 credits of ENGL428 (Seminars) may be included in the 36 credits of the major.

Program Objectives

The English major and minor have been designed to give students an overview of the history and variety of literature written in English; to use the critical study of language and literature to help students think carefully and express themselves well; and to introduce students to the debates about literature and culture that shape our intellectual lives and our national and global conversations. Our hope is that our graduates will enter the world with the sophistication, critical acumen, and sympathy born of wide reading and the skills needed to carry their convictions into action, no matter what line of work they pursue.

Program Learning Outcomes

- Students will be able to analyze critically a literary text.
- Students will be able to write persuasively.
- Students will be able to conduct research in English studies.
- Students will gain an appreciation for the importance of writing, past and present, in society, for the complexity of literature, and for the variety of

perspectives that written expressions represent.

Requirements for the Major

The English Major Requires 36-credits, Distributed As Follows:

	Credits
ENGL301: Critical Methods in the Study of Literature	3
English Majors must take ENGL 301 before they take other 300- or 400-level English courses. We recommend it be taken during the sophomore year. In special cases, students may be permitted to take ENGL 301 while they are taking their first upper level course.	
GROUP I REQUIREMENTS *(one course in each area)*	9
Literary and Cultural History	3
Literary, Linguistic, or Rhetorical Analysis	3
Literature of African-Americans, Peoples of Color, Women, and/or Lesbians, Gays, and Bisexuals	3
GROUP II REQUIREMENTS	24
To be taken at the 300- and 400-level. At least 12 credits must be at the 400-level.	
Writing before 1800 (2 courses)	6
Modern British, Anglophone, and/or Postcolonial Writing (after 1800) (1 course)	3
American, African American, and/or U.S. Ethnic Writing (1 course)	3
Four English focus courses which may follow a designated pathway if the student desires. Students may also count one 300- or 400-level literature course in a literary tradition other than English, either in the original language or in translation, as a Group II elective.	12

Requirements for the Minor

The English minor has three parts: English 301, Group I courses, and Group II courses. The Group I courses assure that students acquire a broad foundation in literary history and critical strategies. The Group II courses offer students the opportunity to explore in greater depth literary periods and literary themes that cross periods. In these courses, students will develop skills in reading, criticism, writing, and research.

The English Minor Requires 21 Credits Distributed As Follows:

	Credits
English 301: Critical Methods in the Study of Literature	**3**

English minors must take ENGL 301 before they take other 300- or 400-level English courses. We strongly recommend that students take ENGL 301 during the sophomore year.

Group I Courses	**6**

English minors must take two courses from two different categories in the Group I listings. These courses are to be taken at the 200- or 300- level. The Group I categories are:

- Literary and Cultural History (one course)
- Literary, Linguistic, or Rhetorical Analysis (one course)
- Literature of African Americans, Peoples of Color, Women, and/or Lesbians, Gays, and Bisexuals (one course)

Group II Courses*	**12**

English minors must take four courses at the 300 and 400 level from the Group 2 listings. At least two of these courses must be taken at the 400 level. These four courses should be distributed in the following ways:

• Writing before 1800 - two courses	6
• Modern British, Anglophone, and/or Postcolonial writing (after 1800) - one course	3
• American, African American, and/or U.S. Ethnic Writing - one course	3

*One (and only one) Group II distributional requirement may be satisfied with any English course at the 300 or 400 level, other than ENGL 386 and ENGL 388.

English and English Education Double Major

In conjunction with the College of Education, the English Department offers a special 125-credit program for students wishing to double major in English and English Education, allowing them to earn a certificate to teach English at the secondary level. For a list of requirements, contact the Office of Undergraduate Studies (2115 SQH, 301-405-3825).

Advising

Academic Advising is available throughout the year in 1128 Tawes Hall. Departmental academic advising is mandatory for all majors each semester. Students should check Testudo for their registration date and schedule an advising appointment at least one week in advance. The department also offers internship and career advising. Advising appointments can be made by calling 301-405-3825 or by visiting the English Undergraduate Office in 1128 Tawes Hall.

The Writing Center

The Writing Center, 1205 Tawes Hall, 301-405-3785, provides free tutorial assistance to students with writing assignments. Appointments are recommended, but walk-ins are welcome based on availability of tutors. Students, faculty, and staff with questions about punctuation, sentence structure, word choice, or documentation can call the Writing Center's Grammar Hotline at 301-405-3787.

Internships

The department both sponsors internships and offers credit for outside pre-professional internships. Students must have completed their Professional Writing requirement and have a 2.5 overall GPA to be eligible for English Department internship credit. For more information, please make an appointment with our Internship Advisor by calling (301) 405-3825.

Honors Program

The English Honors Program offers lively and challenging seminars, the opportunity to do a long-term project in an area of special interest, and the sort of intellectual and literary community that you might find at a small liberal arts college. Students work closely with faculty members and peers in seminars and on a senior project. Interested students should ask for detailed information from an English Department advisor as early as possible in their college careers.

Student Societies and Professional Organizations

The English Department hosts two undergraduate student organizations: Sigma Tau Delta (The English Honor Society) and the English Undergraduate Association. Sigma Tau Delta is an international honor society and is open to English majors and minors. To be eligible to join Sigma Tau Delta, in your English courses you must have a "B" average with at least three completed English courses (excluding fundamental studies), of which two must be at the 300-400 level. Overall, you must have completed 45 university credits with a cumulative GPA of 3.0 or higher. Our department's chapter has sponsored events with faculty speakers, faculty reading events, book and bake sales, and social events at local theaters. The English Undergraduate Association (EUA) is open to all students, majors and non-majors. Each year the activities reflect the interests and personalities of the students who are involved in the organization. Typically, students in EUA organize special events, support departmental initiatives, provide a forum for ideas, create community, and in general have fun. If you are interested in being involved with either of these student groups, please contact the English Undergraduate Office, 1128 Tawes Hall, 301-405-3825.

Scholarships and Financial Assistance

The Office of Student Financial Aid (OSFA) administers all types of federal, state and institutional financial assistance programs and, in cooperation with other university offices, participates in the awarding of scholarships to deserving students. For information, visit: www.financialaid.umd.edu.

Awards and Recognition

Academic Excellence in English
The English Department Academic Excellence Awards are presented each term to students graduating in English with the most outstanding academic records in their course work in the major. Winners receive a certificate and a signed book from the department.
Henrietta Spiegel Creative Writing Award
This award is bestowed each spring to honor undergraduate work in creative writing judged by the creative writing faculty to be the most outstanding; it is named for the oldest person ever to complete an undergraduate degree at the University of Maryland (B.A. in English, 1989, at age 92).
Joseph W. Houppert Memorial Prize
This prize, named for a distinguished member of the department from 1963 until his death in 1979, is awarded each spring to the undergraduate who has written the best essay on Shakespeare during the academic year.
Joyce Tayloe Horrell Award
This award, in memory of a master teacher in the English Department from 1960 to 1967, is conferred annually on the English major who has demonstrated the highest academic achievement among the graduating class.
Sandy Mack Award for Outstanding Work in English Honors
This prize, which is given each spring to the student with the most outstanding overall record in English Honors, is named for the faculty member who developed the English Honors Program and guided it for many years.
Sara Ann Soper Undergraduate Service Award
This award honors a graduating senior who has volunteered time, energy, and commitment to community service; it is memorializes the mother of a 1989 English graduate, Shannon Altman, who endowed it.

Entomology (ENTM)

College of Chemical and Life Sciences
4112 Plant Sciences Building, 301-405-3911
www.entm.umd.edu
Chair: C. Mitter (Prof & Chair)
Director: B. Kent (Inst & Dir)
Professors: P. Barbosa, A. Brown, M. Ma, M. Palmer (Dir), M. Raupp, R. StLeger, B. Thorne, S. Via
Associate Professors: E. Armstrong, D. Hawthorne, W. Lamp, M. Neel, J. Nelson, L. Pick, P. Shrewsbury, J. Shultz

Assistant Professors: D. Gruner, C. Hooks, J. Wang
Affiliate Professors: G. Brust, D. O'Brochta, J. Regier
Affiliate Associate Professors: L. Wu
Affiliate Assistant Professors: U. Pal
Adjunct Professors: D. Davis, C. Labandeira, W. Mathis, D. Miller, R.Robbins, M. Schauff, T. Schultz
Adjunct Associate Professors: J. Lill, S. Lingafelter, S. Scheffer
Professors Emeriti: W. Bickley, D. Bottrell, J. Davidson, G. Dively, J. Hellman, J. Jones, J. Linduska, R. Menzer, D. Messersmith, F. Wood

Requirements for the Major

Undergraduate students interested in Entomology should declare the General Biology specialization within the Biological Sciences Program (see separate listing). Students should also contact the Entomology Director of Undergraduate Studies for information on pursuing a career in Entomology.

Requirements for Specialization
See the Biological Sciences Program listing in this catalog, or contact the Entomology Director of Undergraduate Studies for the General Biology requirements.

Advising

Advising is mandatory in the Biological Sciences Program. The Department of Entomology faculty coordinate and advise students in the General Biology (GENB) specialization. Contact the Department of Entomology for information about advising or to schedule an appointment with the Entomology Director of Undergraduate Studies. For advising on other Biological Sciences Program specializations, see the Biological Sciences Program listing in this catalog.

Undergraduate Research Experiences

Students in the Biological Sciences Program can engage in research with Entomology faculty either in either departmental or off-campus facilities. Contact the Entomology Director of Undergraduate Students for more information.

Honors Program

The Entomology Honors Program provides the opportunity for highly motivated and academically qualified undergraduates to engage in original, independent research under the guidance of an Entomology faculty mentor. The program is open to all Biological Science Program students who have (1) junior standing (including at least twelve credits within the major), (2) a minimum overall GPA and major courses GPA of 3.2, and (3) a Department of Entomology faculty member who has agreed to serve as their mentor. Contact the Entomology Honors Director, Dr. William Lamp (lamp@umd.edu) for more information. Participants in the Entomology Honors Program are eligible for the Ernest N. Cory Undergraduate Scholarship.

Environmental Science and Policy (ENSP)

0220 Symons Hall, 301-405-8571
www.ensp.umd.edu
brjames@umd.edu or jbrown@umd.edu
Director: B. James (Director), W. Whittemore (Associate Director)

The Major

Environmental Science and Policy is a broadly multidisciplinary, undergraduate major, drawing courses and faculty from 20 departments and four Colleges (the Colleges of Agriculture and Natural Resources; Behavioral and Social Sciences; Chemical and Life Sciences; and Computer, Mathematical, and Physical Sciences).

New ENSP students begin in the College of Agriculture and Natural Resources, where they will be guided through a structured, exploratory advising process. ENSP students are expected to declare a concentration by the end of their third semester in the program and, once they declare their concentration, will move administratively to the College and department sponsoring the concentration. There, they are advised by a faculty member in their discipline.

The ENSP faculty and staff aspire to provide a strong ENSP identity for the 300+ students enrolled in this major, and we encourage students to take advantage of the resources available at a Research I Public University. Experiential learning through the Study Abroad Program and internships is strongly encouraged.

Requirements for the Major

ENSP Core

1. Two introductory courses and three credits each semester, emphasizing Environmental Science in ENSP 101 and Environmental Policy in ENSP 102.

2. At least one course each from five of the following six groups:
    a. Biology (BSCI 106)
    b. Chemistry (CHEM 131/132)
    c. Earth Sciences AOSC 200/201, ENST 200, GEOG 201/211, GEOL 100/110, GEOL 120/110
    d. Economics (AREC 240, ECON 200)
    e. Geography (GEOG 100, 123, 130, 140, 202)
    f. Government and Politics (AREC 332, ENSP 330, GVPT 273).

3. One semester of Calculus (MATH 140 or MATH 220)

4. One semester of Statistics (BIOM 301, ECON 321, PSYC 200, SOCY 201, STAT 400)

5. The Capstone course (ENSP 400 in the senior year)

Areas of Concentration

Biodiversity and Conservation Biology; Earth Surface Processes; Environment and Agriculture; Environmental Economics; Environmental Politics and Policy; Environmental Restoration and Management; Global Environmental Change; Land Use; Marine and Coastal Management; Society and Environmental Issues; Soil, Water, and Land Resources; Wildlife Ecology and Management. *Changes may occur in concentrations. Students should consult the program office or visit the ENSP web site (ensp.umd.edu) for updated information.*

Grading Policy

Students who entered the Environmental Science and Policy Program (ENSP) in spring 2002, and thereafter, are required to earn grades of C or higher in all courses taken within the ENSP core, in all required courses, and restricted electives of the selected area of concentration.

Advising

Advising is mandatory each semester. Before registering, students should contact the Associate Director of ENSP to discuss the program requirements and options, and to explore their interests in possible areas of concentration.

Internships

Contact the program director at 301-405-8571 regarding ENSP 386 (Internship in Environmental Science and Policy).

Honors Program

Contact the program director for information on ENSP 499 (Honors in ENSP).

ENVIRONMENTAL SCIENCE AND TECHNOLOGY (ENST)

College of Agriculture and Natural Resources
1457 Animal Sciences Building, 301-405-1193
www.enst.umd.edu
kmonahan@umd.edu
Chair: F. Coale
Professors: F. Coale, R. Harrell, R. Hill, B. James, R. Miller, M. Rabenhorst, D. Ross, T. Simpson, R. Weil, F. Wheaton
Associate Professors: A. Baldwin, J. Becker, G. Felton, P. Kangas, B. Momen, B. Needelman, D. Tilley
Assistant Professors: S. Lansing, P. Leisnham, J. McGrath
Instructors: L. Yonkos
Lecturers: P. Tamboli
Adjunct Assistant Professors: L. Adams, D. Fisher
Professors Emeriti: D. Fanning, R. Weismiller

The Major

The Environmental Science and Technology major prepares students for graduate study and careers focusing on understanding the natural and built environments and resolving environmental problems and concerns for the benefit of humans and ecosystems. Specifically, the program encompasses impacts of human society on the natural environment, the effects of environmental conditions on humans and ecosystems, science-based management of ecosystems, watershed and soil-related processes related to environmental quality, and designing solutions to sustainably improve environmental quality of air, water, soil, and biological communities. The ENST major is a science- and math-based curriculum leading to a B.S. degree in Environmental Science and Technology with concentration in Ecological Technology Design, Environmental Health, Soil and Watershed Science, or Natural Resources Management. These concentrations share a foundation in science and mathematics and offer specialization through restricted and free electives. The group of courses required for the concentrations are designed to provide students with a fundamental understanding of environmental systems and issues and the multidisciplinary quantitative design and analytical tools necessary to solve complex environmental problems. Requirements for the four concentrations are listed separately under the main ENST entry. Additionally, a minor in Soil Science is also available in the Department of Environmental Science and Technology. These requirements are listed below.

For future updates and exciting changes, please visit our website at www.enst.umd.edu

Requirements for the Minor

Soil Science

The minor will provide students with a sophisticated understanding of the soil resources, its development, characteristics, and principles for its use and management. Building on a basic introduction to the broad field of soil science, the program is completed by adding four or five upper division soils courses balanced between underlying principles and field applications.

All courses presented for the minor must be passed with a grade of C or better. Declared majors in the Conservation of Soil, Water and Environment Area of Concentration of NRSC or the Land and Water option in ENSP may not also minor in Soil Sciences.

Advising system for the minor:
The ENST Department has mandatory advising for each of its major and minor programs. Students are required to meet with their advisor at least twice a year.

Curriculum:

ENST 200	Fundamentals of Soil Science	4

Select 13 credits from the ten courses listed below. At least two courses must be from Group A.

Group A - Underlying Principles

ENST 411	Principles of Soil Fertility	3
ENST 414	Soil Morphology, Genesis & Classification	4
ENST 417	Soil Hydrology and Physics	3
ENST 421	Soil Chemistry	4
ENST 422	Soil Microbiology	3

Group B - Applications

ENST 308	Field Soil Morphology	1
ENST 413	Soil and Water Conservation	3
ENST 415	GIS Applications in Soil Science	4
ENST 423	Soil-Water Pollution	3
ENST 430	Wetland Soils	3

Total Credits: A minimum of 17 credits are required to complete this minor.

Students attempting this minor will need MATH 113 or higher. There are a total of 17 required credits in ENST classes, plus a 4 credit CHEM prerequisite. Depending on the pre-requisites needed and the optional courses selected and pre-requisites, students will take between 17 and 24 credits.

This minor is particularly relevant to students majoring in Agricultural and Resource Economics, Geology, Geography, Environmental Science and Policy, Biology, Biochemistry, Chemistry, Anthropology, Architecture, Agriculture Science and Technology, Horticulture and Crop Production, Animal Science, Landscape Architecture, Parks and Planning, Bioengineering, Civil Engineering, Environmental Engineering, Environmental Science and Technology, Natural Resources Management.

Advising

Please contact Kimberly Monahan at 301-405-1193 or kmonahan@umd.edu for more information.

Internships

The ENST curricula consist of a broad set of background courses in environmental science, electives in applications, and upper-level field courses that synthesize the major. Hands-on learning experience is included in required internship and practicum courses, in addition to opportunities for undergraduate research.

Student Societies and Professional Organizations

The Natural Resources Management Society offers its members the opportunity to engage in socially responsible activities related to environmental science and natural resources including education, service, and recreation.

Scholarships and Financial Assistance

The Office of Student Financial Aid (OSFA) administers all types of federal, state and institutional financial assistance programs and, in cooperation with other university offices, participates in the awarding of scholarships to deserving students. For information, visit: www.financialaid.umd.edu

Environmental Science and Technology: Concentration in Ecological Technology Design (ENST)

:

The Major

The ENST concentration in Ecological Technology Design prepares students for integrating natural systems with the built environment to solve environmental problems while achieving economic, ecological and social sustainability. The science and applications of using natural systems, processes and organisms to address environmental issues has evolved during the last few decades to a mature level whereby there are strong employment opportunities for graduates that are cross-educated in ecology and technology. Examples of eco-technological applications include restoration of urban and rural streams, creation of wastewater treatment wetlands, design of raingardens and bioretention systems for low-impact stormwater management, design of eco-industrial parks, life cycle assessment of products for improved environmental performance, bioremediation and phytoremediation of contaminated groundwater, ecological systems for by-product recovery, and filtration of contaminated air with bioreactors. The curriculum consists of a broad set of background courses in environmental science, electives in applications of Ecological Technology Design, and upper-level courses that synthesize the major. Hands-on design experience is included in required internship and practicum courses.

Requirements for the Major

This program requires a total of 120 credit for a Bachelor of Science, including the CORE General Education Program. **71-72** required major credits; **12** Technology and Ecosystem elective credits; **6-7** free elective credits; and **30** credits for CORE (including Introduction to Writing (3), Professional Writing (3), Humanities and Arts (9), Social Sciences and History (9), and Human Cultural Diversity (3). CORE Sciences and Mathematics (9) are satisfied by major required courses. CORE Advanced Studies are satisfied by ENST 471 Capstone Practicum (4) and a non-ENST 300- or 400-level course (3)).

Science and Math Fundamentals Required (50 credits):

ENST 200	Fundamentals of Soil Science	4
ENST 233	Introduction to Environmental Health	3
ENST 360	Ecosystem Ecology	4
ENST 389	Internship in Environmental Science & Technology	3
ENST 398	Seminar in Environmental Science & Technology	1
ENST 471	Capstone Practicum in Environmental Science & Technology	4
BSCI 105	Principles of Biology I	4
BSCI 106	Principles of Biology II	4
CHEM 131/132	Fund. General Chemistry & Lab	4
CHEM 231/232	Organic Chemistry I & Lab	4
MATH 140	Calculus I	4
MATH 141	Calculus II	4
PHYS 121	Fundamentals of Physics I	4
BIOM 301	Introduction to Biometrics	3

Depth (9 credits):

ENST 405	Energy and Environment	3
ENST 481	Ecological Design	3

ENST 410	Ecological Economics	3

Computational Techniques (1 course-3-4 credits):

Choose 1 course from the list below:

ENBE 381	Creative Design with CAD	3
ENST 415 ***or*** GEOG 373	GIS Applications in Soil Science ***or*** Geographic Information Systems	4-3
ENST 480	Ecosystem Simulation Modeling	3

Assessment and Measurement (1 course-3 credits):

Choose 1 course from the list below 3 credits

ENST 380	Environmental Instrumentation	3
ENST 451**	Water Quality: Field and Lab Methods	3
ENBE 462	Nonpoint Source Pollution Assessment Techniques	3

Applications (2 courses - 6 credits):

Choose 2 courses from the list below:

ENST 452	Wetland Creation and Restoration	3
ENST 412	Stormwater Management	3
ENST 443	Industrial Ecology	3
ENST 453	Stream Restoration	3

Technology and Ecosystem Electives

Students will take approximately 6 credits each of Technology and Ecosystem courses as electives to tailor their program to their specific interests (total of 12 credits). Example courses include:

Technology Electives (at least 6 credits[1]):

ARCH 450	Introduction to Urban Planning	3
ENST 452	Wetland Creation and Restoration	3
ENST 412	Stormwater Management	3
ENST 443	Industrial Ecology	3
ENST 453	Stream Restoration	3
ENST 441	Sustainable Agriculture	3
ENST 417	Soil Hydrology and Physics	3
ENST 420	Soil Physical Properties Lab	1
ENST 421	Soil Chemistry	4
ENST 423	Soil-Water Pollution	3
ENST 425	Terrestrial Bioremediation	3
ENST 442** ***or*** GEOG 372	Remote Sensing of Agriculture and Natural Resources ***or*** Remote Sensing	3
ENST 499	Special Topics in Environmental Science and Technology	1-4
GEOL 451	Groundwater	3
GEOL 452	Watershed and Wetland Hydrology	3
LARC 451	Sustainable Communities	3

Ecosystem Electives (at least 6 credits1):

BSCI 362	Ecology of Marsh and Dune Vegetation	2
BSCI 363	The Biology of Conservation and Extinction	3
BSCI 373	Natural History of the Chesapeake Bay	3
BSCI 464	Microbial Ecology	3
BSCI 460/461	Plant Ecology & Lab	5
ENST 314**	Biology and Management of Fin Fish	4
ENST 334	Environmental Toxicology	3
ENST 422	Soil Microbiology	3
ENST 430**	Wetland Soils	3
ENST 444**	Restoration Ecology	3
ENST 450**	Wetland Ecology	3
ENST 451**	Water Quality: Field and Lab Analysis Methods	3
ENST 460**	Principles of Wildlife Management	3
ENST 461**	Urban Wildlife Management	3

ENST 462**	Field Techniques in Wildlife Management	2
ENST 479**	Tropical Ecology and Resource Management	1-6
ENST 499	Special Topics in Environmental Science and Technology	1-4
ENST 452	Wetland Creation and Restoration	3
ENST 401	Fisheries Sustainability and Env. Health	3
GEOG 331	Introduction to Human Dimensions of Global Change	3
LARC 450	Environmental Resources	3
PLSC 400	Environmental Plant Physiology	3
PLSC 471	Forest Ecology	3

[1] Courses satisfying restricted elective requirements can NOT count for Technology or Ecosystem electives. Also, Technology electives cannot be double-counted as Ecosystem electives, and vice-versa.

**Reflects recent course prefix or number modification.

Environmental Science and Technology: Environmental Health (ENST)

:

The Major

Environmental health is a broad and increasingly important field with wide ranging applications in the environmental science and public health fields. The field encompasses environmental factors and ecosystem functions that affect human health and the effects of human activities on the ecosystem products and services we depend on. Example topics within the field include ecological risk analysis, environmental toxicology, environmental impact assessment, chemical fate and transport, human health risk assessment, industrial hygiene, air quality, environmental microbiology, food safety and security, biodiversity and human health, and children's environmental health. The Environmental Health concentration within the Department of Environmental Science and Technology offers a science-based curriculum that includes advanced studies in ecosystem health and environmental protection and the impacts of environmental degradation on human health.

Requirements for the Major

This program requires a total of 120 credits for a Bachelor of Science, including: **68-69** required major credits; **12** Ecosystem Health and Human Health elective credits; **9-10** free elective credits; and **30** credits for CORE (including Introduction to Writing (3), Professional Writing (3), Humanities and Arts (9), Social Sciences and History (9), and Human Cultural Diversity (3). CORE Sciences and Mathematics (9) are satisfied by major required courses. CORE Advanced Studies are satisfied by ENST 471 Capstone Practicum (4) and a non-ENST 300- or 400-level course (3)).

Science and Math Fundamentals Required (56-57 credits)

ENST 200	Fundamentals of Soil Science	4
ENST 233	Introduction to Environmental Health	3
ENST 360	Ecosystem Ecology	4
ENST 389	Internship in Environmental Science & Technology	3
ENST 398	Seminar in Environmental Science & Technology	1
ENST 471	Capstone Practicum in Environmental Science & Technology	4
BSCI 105	Principles of Biology I	4
BSCI 106	Principles of Biology II	4
BSCI 207	Principles of Biology III	3
BSCI 223	General Microbiology	4
CHEM 131/132	Fund. General Chemistry & Lab	4
CHEM 231/232	Organic Chemistry I & Lab	4
CHEM 241/242	Organic Chemistry II & Lab	4
MATH140 **or** 220	Calculus I **or** Elementary Calculus I	3-4
PHYS121 **or** 117	Fundamentals of Physics I or Intro to Physics	4
BIOM 301	Introduction to Biometrics	3

Concentration Depth (12 credits):

ENST 333	Ecosystem Health and Protection	3
ENST 334	Environmental Toxicology	3
ENST 434	Environmental Contaminants: Sources and Fate	3
ENST 445 **or** ENST 446	Ecological Risk Assessment **or** Human Health Risk Assessment	3

Ecosystem Health and Human Health Electives

Students will take approximately 6 credits each of Ecosystem Health and Human Health electives to tailor their program to their specific interests (total = 12 credits). Ecosystem Health electives cannot be double-counted as Human Health Electives, and vice-versa.

Ecosystem Health Electives (at least 6 credits):

ANSC 252	Introduction to the Diseases of Wildlife	3
AOSC 200/201	Weather and Climate & Lab	4
AOSC 434	Air Pollution	3
BSCI 222	Principles of Genetics	4
BSCI 230	Cell Biology and Physiology	4
BSCI 366	Biodiversity Issues in Conservation Management	3
BSCI 375	Biological Oceanography	3
BSCI 447	General Endocrinology	3
BSCI 467	Freshwater Biology	4
BSCI 473	Marine Ecology	3
CHEM 271/272	General Chemistry and Energetics & Bioanalytical Lab	4
ENBE 462	Non-point Source Pollution Assessment Techniques	3
ENST 314**	Biology and Management of Finfish	4
ENST 413	Soil and Water Conservation	3
ENST 415 ***or*** GEOG 373	GIS Applications in Soil Science **or** Geographic Information Systems	4-3
ENST 421	Soil Chemistry	4
ENST 422	Soil Microbiology	3
ENST 423	Soil-Water Pollution	3
ENST 425	Terrestrial Bioremediation	3
ENST 430**	Wetland Soils	3
ENST 440	Crops, Soils and Civilization	3
ENST 441	Sustainable Agriculture	3
ENST 442** **or** GEOG 372	Remote Sensing of Agriculture and Natural Resources **or** Remote Sensing	3
ENST 444**	Restoration Ecology	3
ENST 450**	Wetland Ecology	3
ENST 451**	Water Quality: Field and Lab Analysis Methods	3
ENST 454	Environmental Issues in Plant and Soil Sciences	3
ENST 460**	Principles of Wildlife Management	3
ENST 479**	Tropical Ecology and Resource Management	1-6
ENST 499	Special Topics in Environmental Science and Technology	1-4
ENST 401	Fisheries Sustainability and Env. Health	3
ENST 435	Aquatic Toxicology	3
GEOL 452	Watershed and Wetland Hydrology	3
LARC 450	Environmental Resources	3

Human Health Electives (at least 6 credits):

ANTH 262	Culture and Environment	3
ANTH 410	Culture, Health and Community Development	3
BSCI 201	Human Anatomy and Physiology I	4
BSCI 202	Human Anatomy and Physiology II	4
BSCI 230	Cell Biology and Physiology	4
BSCI 417	Microbial Pathogenesis	3
BSCI 425	Epidemiology and Public Health	3
BSCI 437	General Virology	3
BSCI 440	Mammalian Physiology	4
BSCI 464	Microbial Ecology	3
ENST 499	Special Topics in Environmental Science and Technology	1-4
ENST 446	Human Health Risk Assessment	3
ENST 436	Emerging Environmental Threats	3
GEOG 331	Introduction to Human Dimensions of Global Change	3
GEOG 431	Culture and Natural Resource Management	3
HLTH 140	Personal and Community Health	3
HLTH 230	Introduction to Health Behavior	3
HLTH 371	Communicating Safety and Health	3
HLTH 430	Health Education in the Workplace	3
NFSC 430/434	Food Microbiology & Lab	5

** Reflects recent course prefix or number modification.

Environmental Science and Technology: Natural Resources Management (ENST)

:

The Major

The goal of the Natural Resources Management Program is to teach students concepts of the environmentally sound use and management of natural resources. Ecosystems and human societies are linked in complex cycles and relationships between vegetation and wildlife, forests and cities, conservation and development. By learning to participate effectively within these cycles, we will help sustain a harmonious relationship between the environment and human activities. This concentration provides students with the knowledge and skills they need to work in such positions as wildlife biologists, environmental consultants, wetland scientists, forest managers, fisheries biologists, aquatic biologists, and nature interpreters.

Requirements for the Major

This program requires a total of 120 credits for a Bachelor of Science, including: **69-71** required major credits; **12** Resource Management and Science elective credits;**7-9** free elective credits; and **30** credits for CORE (including Introduction to Writing (3), Professional Writing (3), Humanities and Arts (9), Social Sciences and History (9), and Human Cultural Diversity (3). CORE Sciences and Mathematics (9) are satisfied by major required courses. CORE Advanced Studies are satisfied by ENST 471 Capstone Practicum (4) and a non-ENST 300- or 400-level course (3)).

Science and Math Fundamentals Required (56-58 credits):

ENST 200	Fundamentals of Soil Science	4
ENST 233	Introduction to Environmental Health	3
ENST 360	Ecosystem Ecology	4
ENST 389	Internship in Environmental Science & Technology	3
ENST 398	Seminar in Environmental Science & Technology	1
ENST 471	Capstone Practicum in Environmental Science & Technology	4
BSCI 105	Principles of Biology I	4
BSCI 106	Principles of Biology II	4
BSCI 223	General Microbiology	4
CHEM 131/132	Fund. General Chemistry & Lab	4
CHEM 231/232	Organic Chemistry I & Lab	4
MATH 140 **or** MATH 220	Calculus I **or** Elementary Calculus I	3-4
PHYS 121 **or** PHYS 117	Fundamentals of Physics I **or** Introduction to Physics	4
BIOM 301	Introduction to Biometrics	3
GEOL 100/110 **or** GEOG 201/211	Physical Geology & Lab **or** Geography of Environmental Systems & Lab	4
GEOG 340 **or** GEOL 340	Geomorphology **or** Geomorphology	3-4

Resource Economics (7 credits):

AREC 240	Introduction to Economics and the Environment	4
AREC 332 **or** ENST 410	Introduction to Natural Resources Policy **or** Ecological Economics	3

Government and Politics (3 credits):

GVPT 273	Introduction to Environmental Politics	3

Sociology (3 credits):

SOCY 305	Scarcity and Modern Society	3

Resource Management and Science Electives

Students will take approximately 6 credits each of Resource Management and Resource Science electives to tailor their program to their specific interests for a total of 12 credits. Resource Management electives cannot be double-counted as Resource Science Electives, and vice-versa. This is not an exhaustive list of electives; other science and management courses can be substituted with advisor approval.

Resource Management Electives (6 credits):

ANSC 453	Animal Welfare and Bioethics	3
ANTH 450	Theory and Practice of Environmental Anthropology	3
AREC 365	World Hunger, Population, and Food Supplies	3
AREC 445	Ag. Development, Population Growth and the Environment	3
BSCI 363	The Biology of Conservation and Extinction	3
BSCI 366	Biodiversity Issues in Conservation Management	3
ECON 315	Economic Development of Underdeveloped Areas	3

ENST 314**	Biology and Management of Finfish	3
ENST 405	Energy and Environment	3
ENST 413	Soil and Water Conservation	3
ENST 415 **or** GEOG 373	GIS Applications in Soil Science **or** Geographic Information Systems	4-3
ENST 425	Terrestrial Bioremediation	3
ENST 434	Soil-Water Pollution	3
ENST 440	Crops, Soils and Civilization	3
ENST 441	Sustainable Agriculture	3
ENST 442** **or** GEOG 372	Remote Sensing of Agriculture and Natural Resources **or** Remote Sensing	3
ENST 444**	Restoration Ecology	3
ENST 454	Environmental Issues in Plant and Soil Sciences	3
ENST 460**	Principles of Wildlife Management	3
ENST 461**	Urban Wildlife Management	3
ENST 462**	Field Techniques in Wildlife Management	2
ENST 479**	Tropical Ecology and Resource Management	3
ENST 487**	Conservation of Natural Resources I	3
ENST 497**	Conservation of Natural Resources II	3
GEOG 472	Remote Sensing: Digital Processing and Analysis	3
GEOG 473	Geographic Information Systems and Spatial Analysis	3
GEOL 437	Global Climate Change: Past and Present	3
LARC 450	Environmental Resources	3
LARC 451***	Sustainable Communities	1-6

Resource Science Electives (6 credits):

ANSC 252	Introduction to the Diseases of Wildlife	3
ANSC 452	Avian Physiology	3
BSCI 360	Principles of Animal Behavior	3
BSCI 362	Ecology of Marsh and Dune Vegetation	2
BSCI 373	Natural History of the Chesapeake Bay	3
BSCI 374	Chesapeake Bay Laboratory	2
BSCI 375	Biological Oceanography	3
BSCI 440	Mammalian Physiology	4
BSCI 441	Mammalian Physiology Laboratory	2
BSCI 442	Plant Physiology	4
BSCI 462	Population Ecology	3
BSCI 463	Laboratory and Field Ecology	2
BSCI 464	Microbial Ecology	3
BSCI 467	Freshwater Biology	4
BSCI 473	Marine Ecology	3
BSCI 481	Insect Diversity and Classification	4
BSCI 493	Medicinal and Poisonous Plants	3
ENST 308	Field Soil Morphology	1-2
ENST 414	Soil Morphology, Genesis and Classification	4
ENST 421	Soil Chemistry	4
ENST 422	Soil Microbiology	3
ENST 430**	Wetland Soils	3
ENST 450**	Wetland Ecology	3
ENST 451**	Water Quality: Field and Lab Analysis Methods	3
GEOG 345	Introduction to Climatology	3
GEOG 440	Advanced Geomorphology	3
GEOL 444	Low Temperature Geochemistry	4
GEOL 451	Groundwater	3
GEOL 452	Watershed and Wetland Hydrology	3
PLSC 453	Weed Science	3

**Reflects recent course prefix or number modification.

***Must take at least one other additional course, 6 credits of LARC 451 does not fulfill requirement.

Environmental Science and Technology: Concentration in Soil and Watershed Science (ENST)

:

The Major

The Soil and Watershed Science concentration enables students to understand the complex ways in which aquatic and terrestrial ecosystems are influenced by soil properties and processes and land management decisions. The soil performs such critical ecological functions as supplying and purifying water, recycling wastes, nurturing plants, modifying the atmosphere by emitting or sequestering gases and particulates, providing habitat for the most diverse biological communities on Earth, and serving as a medium for human engineering projects.

The concentration in Soil and Watershed Science in ENST provides students with one of the top soil science programs in the nation. The curriculum prepares graduates for work in variety of careers addressing natural resource and environmental issues and provides a rigorous science background for those planning to pursue post-graduate degrees in environmental sciences, soil science, watershed processes, and related fields. Students graduating from this program will make valuable contributions to society as they pursue challenging careers critical to the protection of the environment. In addition to pursuing advanced degrees, graduates may work in both the private and public sectors performing such services as soil mapping, wetland delineation, land conservation planning, forestry, waste management, farm advising, international development, and consulting in environmental, construction, and landscape architecture areas. Graduates from the Soil and Watershed Science concentration will be qualified to take the national exam to become a Certified Professional Soil Scientist (CPSS).

Requirements for the Major

The total credits required for a Bachelor of Science including the CORE General Education Program is 120, including: **82-84** required major credits; **6-8** free elective credits; and **30** credits for CORE (including Introduction to Writing (3), Professional Writing (3), Humanities and Arts (9), Social Sciences and History (9), and Human Cultural Diversity (3). CORE Sciences and Mathematics (9) are satisfied by major required courses. CORE Advanced Studies are satisfied by ENST 471 Capstone Practicum (4) and a non-ENST 300- or 400-level course (3)).

Science and Math Fundamentals Required (53-54 credits):

ENST 200	Fundamentals of Soil Science	4 credits
ENST 233	Introduction to Environmental Health	3 credits
ENST 360	Ecosystem Ecology	4 credits
ENST 389	Internship in Environmental Science & Technology	3 credits
ENST 398	Seminar in Environmental Science & Technology	1 credit
ENST 471	Capstone Practicum in Environmental Science & Technology	4 credits
BSCI 105	Principles of Biology I	4 credits
BSCI 106	Principles of Biology II	4 credits
CHEM 131/132	Fund. General Chemistry & Lab	4 credits
CHEM 231/232	Organic Chemistry I & Lab	4 credits
MATH 140 **or** MATH 220	Calculus I ***or*** Elementary Calculus I	3-4 credits
PHYS 121 ***or*** PHYS 117	Fundamentals of Physics I ***or*** Introduction to Physics	4 credits
BIOM 301	Introduction to Biometrics	3 credits
PLSC 100 ***or*** PLSC 101	Introduction to Horticulture ***or*** Introductory Crop Science	4 credits
GEOL 100/110	Physical Geology and Lab	4 credits

Fundamental Soil Science Required (14 credits):

ENST 414	Soil Morphology, Genesis and Classification	4 credits
ENST 417	Soil Hydrology and Physics	3 credits
ENST 421	Soil Chemistry	4 credits
ENST 422	Soil Microbiology	3 credits

Technical Electives (3-4 courses-9 credits):

ENST 308	Field Soil Morphology	1 or 2 credits
ENST 411	Principles of Soil Fertility	3 credits
ENST 413	Soil and Water Conservation	3 credits
ENST 415	GIS Applications in Soil Science	3 credits
ENST 423	Soil-Water Pollution	3 credits
ENST 425	Terrestrial Bioremediation	3 credits
ENST 430**	Wetland Soils	3 credits
ENST 442**	Remote Sensing of Agriculture and Natural Resources	3 credits

Breadth Electives (2 courses-6-7 credits):

ENST 440	Crops, Soils and Civilization	3 credits
ENST 441	Sustainable Agriculture	3 credits
ENST 444**	Restoration Ecology	3 credits
ENST 450**	Wetland Ecology	3 credits

ENST 451**	Water Quality: Field and Lab Analysis Methods	3 credits
GEOL 451	Groundwater	3 credits
GEOL 452	Watershed and Wetland Hydrology	3 credits
GEOG 340 **or** GEOL 340	Geomorphology ***or*** Geomorphology	3 or 4 credits

**Reflects recent course prefix or number modification.

Family Science (FMSC)

School of Public Health
1204 Marie Mount Hall, 301-405-3672
www.sph.umd.edu/fmsc/
Chair: E. Anderson (Acting)
Professors: N. Epstein, S. Hofferth, S. Koblinsky
Associate Professors: B. Braun, J. Kim, L. Leslie, M. Mokhtari, K. Roy, E. Shenassa, J. Wallen
Assistant Professors: J. La Taillade
Instructors: C. Werlinich
Lecturers: M. Blair-Brown, M. Guidorizzi, E. Vanden Heuvel, L. Hoskins, W. Knight, B. Livelsberger, C. Schull, K. Tripp, W. Wilcox, S. Williams, R. Zeiger
Affiliate Professors: J. Davis
Professors Emeriti: N. Gaylin (Prof Emeritus), N. Myricks (Prof Emeritus), R. Rubin (Assoc Prof Emeritus)
Visiting Faculty: F. Goldscheider (College Park Professor)

The Major

The Family Science major focuses on the study of families and the problems they face in contemporary society. The major offers excellent training in scientific methods to understand family development, behavior, strengths and challenges. Students learn to describe, explain, and improve the quality of family life through education, applied research, policy analysis, and human services program management. Majors acquire skills in writing, speaking, and computing across the Family Science curriculum and complete an empirical research project prior to graduation.

The Family Science major prepares students for careers in social work, human services, family therapy, family life education, public health, policy analysis, and family mediation. A wide variety of employment opportunities exist for Family Science graduates in direct service and management positions in government, non-profit, and private agencies. The major also provides excellent preparation for graduate study in family science, marriage and family therapy, social work, law, public health, psychology, human resource management, and other social science disciplines.

Courses offered by this department may be found under the following acronym: FMSC.

Requirements for the Major

		Credits
	Required Courses - Major subject area	
	A grade of C or better is required in these courses.	
FMSC302	Research Methods	3
FMSC330	Family Theories and Patterns	3
FMSC332	Children in Families	3
FMSC381	Poverty, Affluence, and Families	3
FMSC383	Delivery of Human Services to Families	3
FMSC432	Adult Development and Aging in Families	3
FMSC477	Internship and Analysis in Family Science	3
FMSC487	Legal Aspects of Family Problems	3
	Required Courses - Department Electives	
	A grade of C or better is required in these courses.	
	Six additional FMSC departmental credits*+	6
	** With the exception of independent study (FMSC 399, FMSC 498) and field work (FMSC 386, FMSC 387).*	
	+ FMSC 105 and FMSC 298F cannot be used to meet this requirement unless they are taken before the student completes 56 credits.	
	Additional Courses Required of all majors	
	All students must earn a grade of C or better in all courses applied toward completion of the major.	
PSYC100	Introduction to Psychology	3
	One from:	3-4
FMSC290	Family Economics	
ECON200	Principles of Microeconomics	
ECON201	Principles of Macroeconomics	
	One from:	3
EDMS451	Introduction to Educational Statistics	
STAT100	Elementary Statistics and Probability	
	One from:	3

SOCY100	Introduction to Sociology	
SOCY105	Introduction to Contemporary Social Problems	
	One from:	3
COMM100	Foundations of Speech Communication	
COMM107	Speech Communication: Principles and Practices	
COMM125	Introduction to Interpersonal Communication	

Internships

All Family Science majors are required to complete an internship experience during their senior year. The internship program is designed to integrate department and other coursework with a real-time work experience. In addition to a 120-hour semester-long field placement, students are required to attend a weekly capstone seminar (FMSC 477). Students in the seminar integrate classroom theory with their field placement and share work-related activities, broadening their exposure to work in the discipline of Family Science and their knowledge of specific career opportunities for FMSC graduates. The internship course is open to all FMSC majors who have completed FMSC 330 and FMSC 383 plus a minimum of six additional credits of FMSC coursework.

Honors Program

The FMSC Honors Program is designed to provide academically talented students with a more advanced and enriching educational experience in Family Sciences. The Honors Program gives students an opportunity to participate in scholarly independent study, interact with FMSC faculty, and examine a range of intellectual topics in greater depth than is possible in the traditional Family Science program.

Any FMSC major who meets the following criteria is eligible for the Honors Program:

- An overall GPA of 3.3 with at least 45 credits completed
- Completion of:
    - FMSC290 with a grade of "B" or better and an additional three credits in FMSC **OR**
    - ECON200 and an additional six credits in FMSC
- A GPA of 3.5 in all FMSC courses

Students meeting the criteria and wishing to participate in the Honors Program must apply three semesters (not including summer) prior to graduation. Application forms are available from the FMSC Honors Program Coordinator.

Student Societies and Professional Organizations

The University of Maryland Council on Family Relations (UMCFR) is a student chapter of the National Council on Family Relations, a professional organization for family researchers, educators, and practitioners. The organization provides an opportunity for students to explore family issues, meet fellow students, and prepare for careers in teaching, research, policy analysis, or direct service to families. UMCFR is open to all undergraduate and graduate Family Science students. For more information, please contact the FMSC Undergraduate Coordinator.

Phi Upsilon Omicron is a nationally recognized honor society focused toward observing academic excellence, enhancing qualities of leadership by providing opportunities for service, and encouraging lifelong learning and commitment in order to advance family and consumer sciences and related areas. Members participate in monthly community service activities on campus and in the surrounding Metropolitan DC areas. They also conduct informative workshops for members and other Family Science students on academic skills development, stress management, graduate school, and potential career paths with a Family Science degree. The Gamma Lambda Chapter has a local alumni chapter which provides our members with many resources. Other membership benefits include networking opportunities through regional and national meetings, scholarship and fellowship awards, honor cords at graduation, and leadership opportunities at the chapter, regional, and national levels.

FINANCE (BMGT)

The Robert H. Smith School of Business
1570 Van Munching Hall, 301-405-2286
www.rhsmith.umd.edu/undergrad
Chair: A. Triantis
Professors: G. Bakshi, A. Kyle, D. Madan, V. Maksimovic, G. Phillips, L. Senbet, A. Triantis, H. Unal
Associate Professors: D. Avramov, S. Heston, S. Hvidkjaer, M. Loewenstein, N. Prabhala, R. Wermers
Assistant Professors: M. Faulkender (Asst Prof), G. Hoberg, D. Kadyrzhanova, E. Kiss (Tyser Teaching Fellow), A. Obizhaeva, A. Obizhaeva (Asst Prof), G. Skoulakis, S. White (Distinguished Tyser Teaching Fellow)
Lecturers: D. Kass, S. Kroncke, J. Perfetti, A. Sherman, M. Taranto (Tyser Teaching Fellow)
Adjunct Professors: L. Gattis (Lecturer), B. Jain (Adjunct Prof), D. Malmquist (Adjunct Prof)

The Major

Finance encompasses:
1. Corporate finance: The financial management of corporations
2. Investments: The management of securities and portfolios
3. Financial institutions and markets: The management of financial institutions and the study of their role in the economy

The Finance curriculum is designed to familiarize the student with the institutions, theory, and practice involved in the allocation of financial resources within the private sector. It provides an educational foundation for careers involving corporate financial analysis and management, investment analysis and portfolio management, investment banking, risk management, commercial banking, and international finance; it also provides a foundation for graduate study in business administration, economics, and law.

Admission to the Major

See Robert H. Smith School of Business entry in chapter 6 for admission requirements.

Requirements for the Major

BMGT343	Applied Equity Analysis and Portfolio Management	3
BMGT440	Advanced Financial Management	3
A combined total of 3 courses (9 credits) must be completed from List A and List B as noted below:		9

List A (a minimum of 2 courses/6 credits must be selected from list A)

BMGT443	Applied Equity Analysis and Portfolio Management
BMGT444	Futures and Options Contracts
BMGT445	Banking and Financial Institutions
BMGT446	International Finance

List B (a maximum of 1 course/3 credits can be applied to the Finance major from List B)

BMGT447	Internship and Research and Finance
BMGT448	Special Topics in Finance
BMGT449	Investment Fund Management: Lemma Senbet Fund

One of the following courses:		3
BMGT310	Intermediate Accounting I	
BMGT313	Financial Statement Analysis	
BMGT332	Operations Research for Management Decisions	
BMGT430	Linear Statistical Models in Business	
BMGT434	Introduction to Optimization	
	Total Finance Major Requirements	18 credits

Upper Level Finance Major Requirements

ECON330	Money and Banking	3
One of the following courses:		3
*ECON305	Intermediate Macroeconomics Theory and Policy	
*ECON306	Intermediate Microeconomics Theory	
ECON340	International Economics	
	Total Upper Level Economics Requirements	6 credits

*Note: Students who have completed either ECON325 and ECON326 can substitute these courses for ECON305 or ECON306 respectively.

Advising

General advising for students admitted to the Smith School of Business is available Monday through Friday in the Office of Undergraduate Programs, 1570 Van Munching Hall, 301-405-2286. It is recommended that students visit this office each semester to ensure that they are informed about current requirements and procedures. Transfer students entering the university can be advised during spring, summer, and fall transfer orientation programs. Contact the Orientation Office for further information, 301-314-8217.

Fire Protection Engineering (ENFP)

A. James Clark School of Engineering
3106 JM Patterson Building, 301-405-3992
www.fpe.umd.edu
Chair: M. DiMarzo
Professors: V. Brannigan, J. Milke (Associate Chair), J. Quintiere
Associate Professors: A. Marshall, F. Mowrer, A. Trouve
Assistant Professors: P. Sunderland
Adjunct Professors: R. Roby, J. Torero
Professors Emeriti: J. Bryan, S. Spivak

The Major

Fire Protection Engineering is concerned with the applications of scientific and technical principles to the growth, mitigation, and suppression of fire. This includes the effects of fire on people, on structures, on commodities, and on operations. The identification of fire hazards and their risk, relative to the cost of protection, is an important aspect of fire safety design.

The fire protection engineering student receives a fundamental engineering education involving the subjects of mathematics, physics, and chemistry. The program builds on other core engineering subjects of materials, fluid mechanics, thermodynamics and heat transfer with emphasis on principles and phenomena related to fire. Fluid mechanics includes applications to sprinkler design, suppression systems, and smoke movement. Heat transfer introduces the student to principles of evaporation for liquid fuels. The subject of combustion is introduced involving premixed and diffusion flames, ignition and flame spread, and burning processes. Laboratory experience is gained by being exposed to standard fire tests and measurements. Design procedures are emphasized for systems involving suppression, detection, alarm, and building safety requirements. The background and application of codes and standards are studied to prepare the student for practice in the field. System concepts of fire safety and methods of analysis are presented. A senior design or research project is required which gives the student an opportunity to explore issues beyond the normal classroom environment.

Program Objectives

The educational objectives of the undergraduate program in Fire Protection Engineering are to produce graduates who:

1. have the technical knowledge and skills needed to practice fire protection engineering in a variety of modern professional settings;
2. have the basic competencies needed to pursue advanced studies in fire protection engineering and related fields;
3. have the ability to understand and communicate the societal, environmental, economic and safety implications of engineering decisions;
4. are prepared to attain professional certification and licensure; and
5. appreciate the need to maintain continual professional competency and to practice ethically.

The practice of fire protection engineering has developed from the implementation and interpretation of codes and standards directed at fire safety. These safety codes contain technical information and prescriptions derived from experience and research. Research has also led to quantitative methods to assess aspects of fire and fire safety. Thus, fire protection engineers need to be versed in the current technical requirements for fire safety and in the scientific principles that underlie fire and its interactions.

Admission to the Major

Admission requirements are identical to those set by the A. James Clark School of Engineering. (See A. James Clark School of Engineering section under the Colleges and Schools section of this site)

Requirements for the Major

In general, the curriculum is designed to give the student a grounding in the science and practice of fire safety. The field touches on many disciplines and its scientific basis is expanding. It is an engineering discipline that is still growing, and offers a variety of excellent career opportunities. These cover a wide spectrum involving safety assessment reviews, hazards analysis and research, loss prevention and regulatory issues.

		Credits	**Credits**
	Freshman Year	**First Sem**	**Second Sem**
CORE	CORE Program Requirements (Including ENGL 101)	3	6
CHEM135	General Chemistry for Engineers	3	
MATH140/141	Calculus I / Calculus II	4	4
ENES100	Introduction to Engineering Design *(**can be taken 1st or 2nd semester)*	3**	
ENES102	Statics *(**can be taken 1st or 2nd semester)*		3**
PHYS161	General Physics I		3
ENFP108	Hot Topics in Fire (optional)	(1)	

	Total	**13**	**16**

	Sophomore Year	**Credits First Sem**	**Credits Second Sem**
CORE	CORE Requirements (incl. Diversity Courses)	3	3
MATH240	Linear Algebra, **or**	4	
MATH241	Calculus III		
MATH246	MATH 246 Differential Equations		3
PHYS260/261	General Physics II	4	
PHYS270/271	General Physics III		4
ENES220	Mechanics of Materials	3	
ENES221	Dynamics		3
ENFP251	Introduction to Fire Protection Engineering	3	
ENFP255	Fire Alarm and Special Hazards Design		3
	Total	**17**	**16**

	Junior Year	**Credits First Sem**	**Credits Second Sem**
CORE	CORE Requirements	3	3
ENME320	Thermodynamics*	3	
ENFP300	Fire Protection Fluid Mechanics	3	
ENFP310	Water Based Fire Protection Systems Design		3
ENFP312	Heat and Mass Transfer		3
ENFP320	Fire Assessment Methods and Laboratory	4	
ENFP350	Professional Development Seminar		1
ELECTIVE	General Elective - see advisor for details		3
ELECTIVE	Approved Electives (STAT, ENFP, ENES, ENxx)**	3	3
	Total	**16**	**16**

	Senior Year	**Credits First Sem**	**Credits Second Sem**
CORE	CORE Requirements	3	
ENFP405	Structural Fire Protection		3
ENFP411	Fire Protection Hazard Analysis		3
ENFP415	Fire Dynamics	3	
ENFP416	Problem Synthesis and Design		3
ENFP421	Life Safety and Risk Analysis	3	
ENFP425	Fire Modeling	3	
ELECTIVES	Approved Electives (STAT, ENFP, ENES, ENxx)**	3	3
	Total	**15**	**12**
	Total Credit Hours		**121**

* ENME 320 is for non-ME majors. ENME 232 is usually for ME majors, but may be substituted with permission.
** Approved electives must include the following:
A minimum of 3 credits (one course) of an approved ENFP elective
A minimum of 3 credits (one course) in either Statistics, Mathematics or Applied Math

Note: An additional chemistry course(s) in Organic, Analytical or Physical Chemistry is recommended. See the department for an additional listing of approved electives.

Advising

Mandatory advising by department faculty is required of all students every semester. Students schedule their advising appointments in the department Office, 3rd floor of J.M. Patterson.

Fieldwork Opportunities

Part-time and summer professional experience opportunities and paid internship information is available in the department Office, 3rd floor, J.M. Patterson. See your advisor or the Undergraduate Chair: J. Milke, 301-405-3992.

Internships

Part-time and summer professional experience opportunities and paid internship information is available on the department website, www.fpe.umd.edu or in the department Office, 3rd floor, J.M. Patterson. See your advisor or the Undergraduate Chair: J. Milke, 301-405-3992.

Student Societies and Professional Organizations

The departmental honor society, Salamander, is open to academically eligible junior and senior students. The University of Maryland student chapter of the Society of Fire Protection Engineers is the professional society for all interested students in the department. Student membership in the National Fire Protection Association is available too. Information on these organizations may be obtained from current members in the student lounge, 3rd floor, J.M. Patterson.

Scholarships and Financial Assistance

Numerous scholarships and grants are available to students in the department from organizational and corporate sponsors. Information is available on eligibility, financial terms and retention criteria in the department Office. The majority of the scholarships are for junior and senior students, but some scholarships are available for first- and second-year students. Also refer to our web site at www.fpe.umd.edu.

Awards and Recognition

Academic achievement awards are sponsored by the department and the student professional-honor societies. These awards are presented at the annual A. James Clark School of Engineering Honors Convocation. Eligibility criteria for these awards are available in the department Office. Qualified students in the department are eligible for participation in the A. James Clark School of Engineering honors program.

French (FREN)

College of Arts and Humanities
3106 Jiménez Hall, 301-405-4023
www.french.umd.edu
:

The Major

The undergraduate major in French is centered on the study of the French language and the literatures and cultures of French peoples. Students who complete the requirements for the major can expect to be able to speak, read, write, and understand French at a level that would allow them to communicate with native speakers, to recognize and interpret the diverse cultural perspectives and products of the French-speaking world, and to be culturally sensitive members of society. Students are encouraged to study abroad, and University programs in Nice and Montpellier offer a choice between long and short-term stays.

Requirements for the Major

Students must take language acquisition courses sequentially, i.e., 103, 203, 204, 250, etc. Once credit has been received in a higher-level language acquisition or grammar course, a lower-level course may not be taken for credit.

	Required Courses (36 credits)	**Credits**
FREN204	French Grammar and Composition	3
FREN250	Introduction to French Literature	3
FREN301	Composition and Style	3
FREN401	Writing with Style	3
	One from:	
FREN302	Translation: French to English	3
FREN303	Translation: English to French	3
	One from:	
FREN311	Advanced Oral Expression	3
FREN312	France Today	3
	Also required:	
FREN351	From Romanticism to the Age of Modernism and Beyond	3
FREN352	From the Age of Epic and Romance to the Enlightenment	3
FREN4xx	four additional 400-level courses of which only one may be in English	12

Gemstone

0102 Ellicott Hall, 301-405-8047
www.gemstone.umd.edu
Dr. James Wallace

Gemstone is a four-year program with students from many different majors and with a variety of interests. They have a unique opportunity to participate in a program involving special GEMS courses, but most importantly as members of undergraduate interdisciplinary research teams. Under the guidance of faculty mentors, Gemstone students carry out their team research on problems that often, but not exclusively, involve science and/or technology. However, rather than merely considering these problems from a technical point of view, Gemstone research projects take into consideration history, ethics, politics, sociology, psychology and business among other perspectives. Thus, we are eager to have students from all majors at the university participate in these many faceted projects. Some of the topics that current Gemstone teams are working on include: prevalence of antibiotic resistance in meat products, carbon sequestration, medical uses of electromyography, the effects of pollution on fish reproduction, improving hospital emergency room efficiency and effectiveness, and creating a multiplayer online game to assist ESOL students learn English.

Students in the Gemstone Program select their research topics during their freshman year through a discussion-based process led by upper class Gemstone students. Team research begins in earnest at the beginning of the sophomore year and continues into the senior year when each team writes a team thesis and then defends it in front of a distinguished panel made up of individuals from academia, industry, and government. Students who successfully complete the Gemstone Program receive the Gemstone Citation, which appears on their transcript.

What Gemstone provides participants is the experience of learning to do original research with a team of high achieving students under the supervision of a faculty mentor. It also makes opportunities available for students to develop leadership and citizenship qualities. Less tangible but of equal importance, the Program exists as a living-learning environment in which its students are supported by the Gemstone staff, mentors and their fellow students in both their academic endeavors and some social activities.

Geography (GEOG)

College of Behavioral and Social Sciences
2108 LeFrak Hall, 301-405-4073
www.geog.umd.edu
geog-advise@umd.edu
Chair: J. Townshend
Professors: R. Defries (ESSIC), R. Dubayah, S. Goward, C. Justice, E. Kasischke, M. Kearney, S. Liang, S. Prince, P. Townsend
Associate Professors: J. Cirrincione (Associate Chair), M. Geores
Assistant Professors: C. Dibble, I. Yeo (Asst Prof), N. Zhou
Lecturers: C. Carter, I. Csiszar (Assoc Res Sci, Lecturer), A. Eney, R. Luna (Fac Res Asst), M. Zlatic
Adjunct Professors: R. Izaurralde, N. Rosenberg, J. Short (Adjunct Prof), C. Tucker, D. Williams
Adjunct Associate Professors: J. Althausen, S. Goetz, C. Walthall
Adjunct Assistant Professors: J. Morisette
Professors Emeriti: H. Brodsky, R. Harper, D. Thompson, J. Wiedel

The Major

How do you see the future? More of everything: food, parks, leisure, personal electronic devices, peace between the nations? Or more people, new diseases, traffic gridlock, and starvation? Will there still be crabs and oysters from the Chesapeake Bay?

The world is changing at unprecedented rates, primarily as a result of human actions. Opportunities for increased well-being of humans and the environment abound. On the other hand competition for resources such as fresh water and oil is reaching crisis proportions.

The future of humanity depends on skillful management of our environment by planning the social, urban, suburban and rural settings where we work, live and play. Expert care of the environment is needed to maintain supplies of food, natural products, water, and the other resources on which life depends. New insights into the social, economic and urban environment can help control poverty and crime.

Geography concerns the relations between people and the natural world, the effects of ecosystems on human beings and vice versa, the choices people make, the effects of past actions on people today, and the effects of today's choices on future generations.

Program Learning Outcomes

Having completed the degree program, students should have acquired the following knowledge and skills:

1. Possess an understanding of the nature of the physical systems and processes of the Earth's environment and their interactions.
2. Understand the nature of the geographical approach and its value in understanding human-environment relationships.
3. Know the methods and techniques of data collection, display and analysis used in the study of environmental systems.

Academic Programs and Departmental Facilities

The Geography Department has two 25-seat computer teaching laboratories that are used in undergraduate coursework, particularly in GIS/Remote Sensing courses. There are different types of equipment for field research and remote sensing, and Global Positioning Systems (GPS) are also available.

Requirements for the Major

Within any of the specializations available in the geography major program it is possible for students to adjust their programs to fit their individual interests. The geography major totals 35 semester hours. In addition to the 35 semester hours, the geography major is required to take an additional 15 semester hours of supporting course work outside of the department. The hours can be either in one department or in an area of specialization. An area of specialization requires that a written program of courses be reviewed and placed on file by the department advisor. Visit or call the Advising Office, Lefrak 2108, 301-405-4073, e-mail geog-advise@umd.edu, or see the web page at www.geog.umd.edu. Supporting courses generally are related to the area of specialty in geography. The pass-fail option is not applicable to major or supporting courses. A minimum grade of C in each course is required for major and supporting courses.

Geography Major

The required courses for geography majors are as follows:

	Required Courses	
GEOG201	Geography of Environmental Systems	3
GEOG202	The World in Cultural Perspective	3
GEOG211	Geography of Environmental Systems Laboratory	1
GEOG212	The World in Cultural Perspective Lab	1
PHYSICAL	Upper-level physical geography course	3
HUMAN	Upper-level physical human course	3
TECHNIQUE	Upper-level geographic technique course	3
	At least one upper-level course in physical geography, human geography and geographic technique is required regardless of the specialty of the individual student's program. These courses build on the initial base provided by the Primary Courses, and also serve as the basis for selection of upper-level geography courses.	
ELECT 300/400	Upper-level geography electives	15
GEOG306	Introduction to Geographic Methods for the Geographic Environmental Sciences	3
	Total Credits:	35

	Supporting Courses	
MATH220	Elementary Calculus I	3
SUPPORT	Supporting courses approved by GEOG advisor	12

Introduction to Geography

The 100-level geography courses are general education courses for persons who have had no previous contact with the discipline in high school or for persons planning to take only one course in geography. They provide general overviews of the field or in one of its major topics. Credit for these courses is not applied to the major.

Related Programs

Geographic Information Science/Computer Cartography Major

The Geography Department offers an important area of specialization: GIS and Computer Cartography. The Bachelor of Science degree program in Geographic Information Science and Computer Cartography is designed to give students the technical skills needed to acquire, manage and analyze very large amounts of geographic data. Students will get extensive computer training in digital processing of remote sensing observations and cartographic vector data, spatial analysis, and the display of information products. Almost everything we do involves geographic information, from deciding where to live and travel, to environmental monitoring and urban planning. Influenced by computer technology, the academic disciplines of geographic information science such as remote sensing, geographic information systems (GIS), and computer cartography have evolved dramatically in the past few decades. Remote sensing is the science of obtaining geographic information from aircraft and satellites. GIS technology manages and analyzes different forms of digital geographic data, and this field has been growing at an extraordinary rate. Computer cartography has revolutionized traditional cartography to vastly improve map making and visualization of geographic information in a multimedia environment.

The required courses for GIS majors are as follows:

	Required Courses	
GEOG201	Geography of Environmental Systems	3
GEOG202	The World in Cultural Perspective	3
GEOG211	Geography of Environmental Systems Laboratory	1
GEOG212	The World in Cultural Perspective Lab	1
PHYSICAL	Upper-level physical geography course	3
HUMAN	Upper-level physical human geography course	3
GEOG306	Introduction to Geographic Methods for the Geographic Environmental Sciences	3
ELECT 300.400	Upper-level geography electives	3
GEOG372	Remote Sensing	3
GEOG373	Geographic Information Systems	3
GEOG375	Computer Cartography	3
GEOG472	Remote Sensing: Digital Processing and Analysis	3
GEOG473	Geographic Information Systems and Spatial Analysis	3
	Total Credits	**35**
	Supporting Courses	
	Supporting courses approved by GEOG advisor	12
	One from	
MATH220	Elementary Calculus I	3
MATH140	Calculus I	4
	Supporting area courses must be taken from a list provided by the department. All math programs should be approved by a departmental advisor.	

Geography and Social Studies Education Double Major

In conjunction with the Department of Curriculum and Instruction, the Geography Department offers a special 121 credit hours program for students wishing to double major in Geography and Social Studies Education - Geography Concentration, allowing them to teach geography at the secondary level. Early examination of requirements is encouraged to reduce the number of additional hours required. In addition to the Geography Departments required credits, the program requires 28 credit hours of course work in history and the social sciences. For a list of requirements, contact the Geography Undergraduate Advising Office. Requirements are also listed under the Department of Curriculum and Instruction Social Studies Education - Geography Concentration double major option.

Requirements for the Minor

Minor in Geographic Information Science (GIS)

See undergraduate advising office for more information: LeFrak Hall 2108, 301-405-4073.

	Non-Geography Major Required Courses	
GEOG201/211 **or** GEOG202	Geography of Environmental Systems/Lab **or** The World in Cultural Perspective	3or 4

GEOG306	Introduction to Geographic Methods for the Geographic Environmental Sciences	3
GEOG372	Remote Sensing	3
GEOG373	Geographic Information Systems	3
	One from:	
GEOG472	Remote Sensing: Digital Processing and Analysis	3
GEOG473	Geographic Information Systems and Spatial Analysis	
GEOG475	Computer Cartography	
	Total Credits	**15/16**

	Geography Major Required Coures	
GEOG306	Introduction to Quantitative Methods for the Geographic Environment Sciences	3
GEOG372	Remote Sensing	3
GEOG373	Geographic Information Systems	3
GEOG476	Programming for Geographers	3
	One from	
GEOG472	Remote Sensing: Digital Processing and Analysis	3
GEOG473	Geographic Information Systems and Spaial Analsysis	
GEOG475	Computer Cartography	
	Total Credits	**15**

Student must achieve a "C" or better in each course applied to the Minor in Geographic Information Systems.

Fieldwork Opportunities

GEOG 328 (Summer): The Geography of Puerto Rico
This course builds on the resounding success of last year's course. Students will explore and truly will comprehend why they call Puerto Rico "the island of enchantment." Students will explore San Juan the historic capital city and Ponce a deep water port. El Yunque, the only tropical rain forest within the U.S. Park Service's system. The Island of Vieques where the class will see first hand and active sea turtle nesting grounds and a bio-luminescent bay.

GEOG 328 (Winter): The Geography of the Southern Caribbean
This course offers an unique and challenging "hands-on" study of Grenada and the Grenadines during the Winter term. The best way to study the Grenadines is by sailing vessel. The Grenadines are the "land of eternal summer," making them one of the most exclusive sailing grounds in the world. Students will be able to visit not only Grenada but St. Lucia, St. Vincent, Tobago Cays.

Internships

The department offers a one-semester internship program for undergraduates (GEOG 384 and 385). The goal of the program is to enhance undergraduates' intellectual growth and career opportunities. The internship provides an opportunity for the students to expand their understanding of the field by linking the theoretical aspects of geography acquired in the classroom to the applied aspects operating in a practice situation. The internship program is open only to geography juniors and seniors. All interns must have completed the following prerequisites: GEOG 201/211, 202/212, 305 or its equivalent, and the upper-level writing requirement. An application form from the undergraduate geography advisor must be submitted one semester before the internship is desired. See undergraduate advising office, 2108 LeFrak Hall, 301-405-4073 for information.

Honors Program

Students admitted to the Honors program engage in independent research under the guidance of an individual faculty member. Students are eligible upon completion of 30 credits of geography courses including the required courses. Honors students will need to register for 12 credits of which they can substitute for formal coursework. Students must have a 3.2 overall GPA and a 3.5 GPA in Geography.

Student Societies and Professional Organizations

Gamma Theta Upsilon, the geography undergraduate organization, operates a program of student-sponsored talks and field trips.

Geology (GEOL)

College of Computer, Mathematical and Physical Sciences
1115 Geology Building, 301-405-4365
www.geol.umd.edu
Chair: M. Brown
Professors: P. Candela, D. Lathrop (Prof & Dir), W. McDonough, R. Rudnick, R. Walker, A. Wylie (Distinguished Scholar Teacher)
Associate Professors: M. Evans (Assoc Prof), J. Farquhar, A. Kaufman (Affil Assoc Prof), K. Prestegaard
Assistant Professors: A. Campbell, S. Hier-Majumder, A. Martin, L. Montesi, S. Penniston-Dorland, W. Zhu
Lecturers: E. Brabson, T. Centorbi, T. Holtz (Senior Lecturer), J. Merck (Senior Lecturer)
Affiliate Professors: A. Busalacchi (Prof & Dir), G. Helz (Res Prof), B. James (Prof & Dir, Affiliate Prof)
Affiliate Associate Professors: R. Murtugudde (Affil Assoc Prof, Prof), N. Zeng (Aff Asst Prof, Assoc Prof)
Adjunct Professors: Y. Fei (Adjunct Prof), S. Sorensen, E. Zen
Adjunct Associate Professors: J. Bohlke
Adjunct Assistant Professors: J. Baldwin, B. Wing
Professors Emeriti: L. Chang (Prof Emeritus), P. Stifel (Assoc Prof Emeritus)
Visiting Faculty: H. Becker (Visit Res Prof), M. Fogel (Visit Prof), T. Johnson (Visit Res Assoc), I. Lee (Visit Assoc Prof), W. Minarik (Visit Asst Res Sci), R. Moraes (Visit Res Assoc), J. Ryan (Visit Prof), P. Tomascak (Visit Asst Res Sci)

The Major

Geology is the science of the Earth. In its broadest sense, geology concerns itself with planetary formation and subsequent modification, with emphasis on the study of planet Earth. Geologists study Earth's internal and surficial structure and materials, the chemical and physical processes acting within and on the Earth, and utilize the principles of mathematics, physics,chemistry, and biology to understand our planet and its environments.

Geological Studies encompass all the physical, chemical, and biological aspects of Earth. Increasingly, geologists are taking a holistic approach in the collection and interpretation of data about the Earth, which means that the wider context of the geological sciences is broad and diverse. In studying the Earth as a system, we are concerned with geology and geophysics, hydrology, oceanography and marine science, meteorology and atmospheric science, planetary science, and soil science. A major in any relevant discipline can lead to a satisfying career within the geological sciences. In general, graduate training is expected for advancement to the most rewarding positions and for academic employment.

Program Objectives

Geologists are employed by governmental, industrial, and academic organizations. Geologists work in exploration for new mineral and hydrocarbon resources, as consultants on engineering and environmental projects, as teachers and researchers in universities, and in many other challenging positions. For many, the attraction of a career in geology is the ability to divide time between work in the field, the laboratory, and the office. Although the employment outlook within geology varies with the global economic climate, the long-range outlook is good. This is because our dwindling energy, mineral, and water resources, along with increasing concerns about natural hazards and environmental issues, present new challenges for geologists.

Program Learning Outcomes

The Geology Program at Maryland includes a broad range of undergraduate courses to accommodate both Geology majors and students within the Environmental Science and Policy Program. Within the Geology major, a requirement exists for a senior undergraduate research project to be performed under the direction of a faculty advisor. This requirement provides invaluable experience in writing proposals and reports, gathering, analyzing and evaluating data, and delivering scientific talks. In addition, a Departmental Honors Program and a combined B.S./M.S. Program are available.

Requirements for the Major

Requirements for the Geology Major, Professional Track

The geology curriculum is designed to meet the requirements of industry, graduate school, and government. For the B.S. degree, the students are required to complete the departmental requirements (49 credits) and the supporting requirements (23/24 credits) in addition to the CORE (general education) Program requirements. The department requires that to receive a degree in Geology, students must have a grade of C or better in the required Geology Courses, and an average of C or better in the Supporting Courses.

Courses required for the B.S. in Geology are listed below, Some courses require field trips for which the students are expected to pay for room (if required) and board. Field camp is taken during the summer at institutions other than the University of Maryland, College Park, that offer camps approved by the department.

		Credits
	CORE Program Requirements*	**46**
	Geology Courses	**49**
GEOL100/110	Physical Geology and Laboratory, **OR**	4
GEOL120/110	Environmental Geology and Lab	
GEOL102	Historical Geology	4
GEOL322	Mineralogy	4
GEOL340	Geomorphology	4
GEOL341	Structural Geology	4
GEOL342	Stratigraphy and Sedimentation	4
GEOL393	Technical Writing	3
GEOL394	Research Problems	3
GEOL444	Low-Temperature Geochemistry, **OR**	4
GEOL445	High-Temperature Geochemistry	
GEOL446	Geophysics	3
GEOL451	Groundwater	3
GEOL423	Optical Mineralogy	3
GEOL443	Petrology	4
GEOL490	Field Camp	6
	Supporting Courses	**23-24**
CHEM131/132	Fundamentals of General Chemistry and Lab, **OR**	
CHEM135/136	General Chemistry for Engineers and Laboratory	4
MATH140	Calculus I	4
MATH141	Calculus II	4
PHYS141	General Physics	4
	One of the following:	3-4
PHYS142	General Physics, **OR**	
BIOM301	Introduction to Biometrics	
GEOL	Any of GEOL444, 445, 446 or 472 not already completed to meet the requirements above or any other 300 or 400 level Geology course not listed above.	

**Of the normal CORE requirements (46 credit hours), at least 13-14 credits are met by the major requirements in Mathematics, Chemistry, Geology or Physics (Mathematics and the sciences area).*

Requirements for the Geology Major, Secondary Education Track

The Secondary Education Track in Geology leads to a B. S. Degree in Geology with special emphasis on course work that helps prepare the student for teaching at the secondary school level. Further coursework and student teaching are required for an education certification. This track also prepares the student for work as a geologist in government or industry, or for further graduate study, although students primarily intending to attend graduate school in Geology are advised to choose the Professional Track. Students seeking professional opportunities in secondary education are urged, also, to consult with advisors in the College of Education.

Relative to the professional Geology track, in the Secondary Education track, there is a reduction of two upper-level Geology requirements, but the addition of two Education courses and the option of an Atmospheric and Oceanic Science or Astronomy course. Further coursework in Education (including student teaching) will be required in order to obtain a Maryland State Teaching Certification. Although Geology is by nature interdisciplinary, it is recommended that students consider taking additional courses in Biology and the philosophy of science in order to add to their educational breadth. The department requires that to receive a degree in Geology, students must have a grade of C or better in the required Geology Courses, and a C average or better in the supporting courses.

	Credits
CORE Program Requirements	46
Departmental Requirements	45/47
Supporting Requirements	19/20
Education Requirements	6

	Geology Courses - One of the following:	4
GEOL100/110	Physical Geology and Laboratory, **or**	
GEOL120/110	Environmental Geology and Lab	
GEOL102	Historical Geology	4
GEOL322	Mineralogy	4
GEOL340	Geomorphology	4
GEOL341	Structural Geology	4
GEOL393	Technical Writing	3
GEOL394	Research Problems (Capstone)	3
GEOL443	Petrology	4
GEOL490	Geological Field Camp	6
	Three of the following:	
GEOL212	Planetary Geology	3
GEOL342	Stratigraphy and Sedimentation	4
GEOL/ AOSC375	Introduction to the Blue Oceans	3
GEOL444	Low-Temperature Geochemistry	4
GEOL445	High Temperature Geochemistry	4
GEOL451	Groundwater	3
	Supporting Courses	
	One of the following	
ASTR100	Introduction to Astronomy	3
ASTR101	General Astronomy	4
AOSC200	Weather and Climate	
	One of the following	
CHEM131/132	Fundamentals of General Chemistry and Lab	4
CHEM135/136	General Chemistry for Engineers and Laboratory	4
	and	
MATH140	Calculus I	4
MATH141	Calculus II	4
PHYS141	General Physics	4
	Education Courses	
	6 credits selected from the following:	
EDPL210	Historical & Philosophical Perspective on Education	3
EDPL301	Foundations of Education	3
EDHD413	Adolescent Development	3
EDHD426	Cognitive and Motivational Basis of Reading I	3
EDCI463	Teaching Reading in Content Area II	3

Recommended

BSCI105	Principles of Biology I, **and**	4
BSCI106	Principles of Biology II	4
PHIL250	Philosophy of Science **or**	3
HIST174	History of Science	
PHYS142	Principles of Physics (second semester)	4
EDUC	The remaining 6 credits of the Education courses listed above	6
Total Credits		74-76

Other Requirements for the Major

Combined B.S./M.S. in Geology

The Combined B.S./M.S. program is designed to permit a superior student to earn both the Bachelor's and the Master's degrees following five years of study. The combined program is an integrated experience of undergraduate and graduate work. Nine credits of graduate courses taken as an undergraduate can be counted towards both the B.S. and M.S. degrees. The master's thesis may be a continuation of work begun as part of the undergraduate senior thesis.

Acceptance into the Combined B.S./M.S. normally would occur after the end of the sophomore year. The minimum requirements for acceptance into this program are similar to those for the Geology Honors program and are:

1. An overall GPA of at least 3.0 at the end of the sophomore year and a GPA of 3.0 or better in all courses required for the major.
2. At least three letters of recommendation.
3. An essay or statement of purpose.
4. An interview with the undergraduate Honors Director and the Graduate Director.

The Combined B.S./M.S. program allows 9 credits of graduate courses (600-level or above) to be counted towards both the B.S. and M.S. degrees. A grade of "B" or better must be earned in each of these courses.

Continued progress in the program requires completion of the undergraduate curriculum, a GPA of 3.5 or better in GEOL 393 and GEOL 394, and maintenance of a 3.0 overall GPA and a GPA of 3.0 or better in all courses required for the major. The requirements for admission into the graduate program must also be met, including receiving acceptable scores in the General GRE exam, usually taken during the fall term of the senior year.

Requirements for the Minor

An undergraduate Minor recognizes concentrated study in a designated field in the College Of Computer, Mathematical, and Physical Sciences. The award of a Minor will be noted on the student's transcript at the time of graduation.

These minors may be earned by students not majoring in Geology and are administered by the Geology Undergraduate Studies Director. A grade of "C" or better must be earned in all courses required for the minor. See www.geol.umd.edu for more information.

		Credits
	Minor in Surficial Geology	
GEOL100/110	Physical Geology/Lab, **OR**	4
GEOL120/110	Environmental Geology/Lab	4
GEOL123	Causes and Implications of Global Change	3
GEOL340	Geomorphology	4
	Two from:	
GEOL342	Sedimentation and Stratigraphy	4
GEOL451	Groundwater	3
GEOL452	Watershed and Wetland Hydrology	3
GEOL331	Principles of Paleontology	4
GEOL499	Special Problems in Geologoy	3
	Minor in Earth Material Properties	
GEOL100/110	Physical Geology/Lab, **OR**	4
GEOL120/110	Environmental Geology/Lab	4
GEOL322	Mineralogy	4
	Two from:	
GEOL341	Structural Geology	4
GEOL423	Optical Mineralogy	3
GEOL443	Petrology	4
GEOL445	High Temperature Geochemistry	4
GEOL446	Introduction to Geophysics	3
GEOL499	Special Problems in Geology	3
	Minor in Earth History	
GEOL100/110	Physical Geology/Lab, **OR**	4

GEOL120/110	Environmental Geology/Lab	4
GEOL102	Historical Geology	4
	Three from:	
GEOL331	Principles of Paleontology	4
GEOL341	Structural Geology	4
GEOL342	Sedimentation and Stratigraphy	4
GEOL436	Principles of Biogeochemisty	3
GEOL437	Global Climate Change: Past & Present	3
GEOL499	Special Problems in Geology	3

Minor in Hydrology

GEOL110/110	Physical Geology/Lab, **OR**	4
GEOL120/110	Environmental Geology/Lab	4
GEOL322	Mineralogy	4
GEOL342	Sedimentation and Stratigraphy	4
	Two from:	
GEOL436	Principles of Biogeochemisty	3
GEOL444	Low Temperature Geochemistry	4
GEOL451	Groundwater	3
GEOL452	Watershed and Wetland Hydrology	3
GEOL499	Special Problems in Geology	3

Minor in Geophysics

GEOL110/110	Physical Geology/Lab, **OR**	4
GEOL120/110	Environmental Geology/Lab	4
GEOL446	Introduction to Geophysics	3
GEOL457	Seismology	3
	Two from:	
GEOL322	Mineraology	4
GEOL341	Structural Geology	4
GEOL472	Tectonics	3
GEOL455	Marine Geophysics	3
GEOL499	Special Problems in Geology	3

Depending on the optional course taken, there is a total of 16 - 18 required credits (see prerequisites).

All Geology minors are an appropriate disciplinary combination with Astronomy, Computer Science, Mathematics, or Physics majors within CMPS. The minors are also appropriate for majors outside the college with appropriate matches including, but not limited to:

Geography/Remote Sensing (Surficial Geology)
Engineering and Material Sciences (Earth Material Properties)
Evolutionary Biology and Physical Anthropology (Earth History)
Biology, Biological Diversity, and Ecology (Earth History, Hydrology)

Advising

The Geology Undergraduate Studies Director serves as the advisor for the geology majors, 1119 Geology Building, 301-405-4379. Students who have been away more than two years may find that due to curriculum changes the courses they have taken may no longer be adequate preparation for the courses required to complete the major. Students in this situation must meet with the Undergraduate Studies Director to make appropriate plans.

Honors Program

Admission to the Program is by invitation of the Honors Committee, normally at the end of the sophomore year and normally will be extended to students with an overall GPA of 3.0 or better and a GPA of 3.0 or better in all courses required for the major. Graduation with Honors normally requires completion of the curriculum, a GPA of 3.5 or better in GEOL 393H and GEOL 394H, and maintenance of a 3.0 overall GPA and a GPA of 3.0 or better in all courses required for the major. Maintenance of a GPA of 3.5 or above and a grade of A in both GEOL 393H and GEOL 394H will earn the distinction of Graduation with High Honors.

The curriculum for Honors in Geology follows the University Honors Program Track I: Thesis Option with a 15 credit minimum.

1. The requirement for upper division Honors courses will be met by a minimum of 9 hours as follows:
    a. GEOL 489H Recent Advances in Geology (3 credit hours), and
    b. 6 credit hours from the following:
        i) a 3 credit hour graduate-level course approved by the Departmental Honors Committee,

        ii) Honors Option project in a three or four credit hour upper-level course from the offerings in the Geology Department. The Honors Option Proposal must be approved by the Departmental Honors Committee, the professor teaching the course and the University Honors Program. A proposal must be approved by the Department and submitted to the University Honors Program by the 10th day of class in the semester in which the course will be taken and the project completed.

2. The research and thesis requirement will be met by completion of GEOL 393H and GEOL 394H with a GPA of 3.5 or better (6 credit hours).

Student Societies and Professional Organizations

Sigma Gamma Epsilon, National Honor Society for Earth Sciences, and the Geology Club.

Awards and Recognition

Bengt Svenonius Memorial Scholarship for graduating senior with the highest overall scholastic average; Fernow Memorial Faculty Field Camp Awards for geology majors to attend geology summer camp; Sigma Gamma Epsilon Award for a senior in geology for Outstanding Scholastic Achievement and service to the Society; and Best Senior Research Award.

Germanic Studies (GERM)

College of Arts and Humanities
3206 Jiménez Hall 3206 Jiménez Hall, 301-405-4091
www.german.umd.edu
germanicstudies@umd.edu
:

Requirements for the Major

The BA in Germanic Studies is centered on the study of the German language and the literatures and cultures of Germanic peoples. Students who complete the requirements for the major can expect to be able to speak, read, write, and understand German at a level that would allow them to communicate with native speakers, to recognize and interpret the diverse cultural perspectives and products of the German-speaking world, and to be culturally sensitive members of society.

Note: All prerequisite simply "or equivalent knowledge."

Prerequisite: 8 credits

GERM103 Intensive Elementary German	4 credits
GERM203 Intensive Intermediate German	4 credits

Course Requirements: 36 credits
All choices, transfer equivalencies, and substitutions to be approved in advance by advisor.

A. Core Language Sequence: 9 credits

GERM204 German Grammar Review (GERM203/HS level 4 German)
GERM301 Conversation/Composition I: Germany and its People (GERM204)
GERM302 Conversation/Composition II: Current Topics in German Society (GERM301)

B. Area Requirements: 27 credits
Nine courses, to include a minimum of 2 upper-level courses in each of three areas: language, literature, and culture.

Language Courses: 6 credits upper level minimum
GERM401 Adv Conversation: Germany within Europe (GERM302)
GERM403 Adv Composition: German Culture & Soc Issues (GERM302)
GERM405 Stylistics (GERM302)
GERM315 Practicum in Translation I (GERM204)
GERM316 Practicum in Translation II (GERM315)
GERM411 German for International Business I (GERM302)
GERM412 German for International Business II (GERM411)
GERM319 Selected Topics in Germanic Language Studies (GERM203)
GERM419 Selected Topics in German Language Study (302)
GERM479 Selected Topics in Germanic Philology

Literature Courses: 6 credits upper level minimum
GERM320 Survey of German Studies (GERM301)
GERM321 Highlights of German Literature I (GERM301)
GERM322 Highlights of German Literature II (GERM301)
GERM421 Literature of the Middle Ages (one course from the 320 series)
GERM422 From the Reformation Through the Baroque (one course from the 320 series)
GERM424 Classicism (one course from the 320 series)
GERM431 Romanticism and Biedermeier (one course from the 320 series)
GERM432 From Enlightenment to Storm and Stress (one course from the 320 series)
GERM433 Naturalism and its Countercurrents (one course from the 320 series)
GERM434 Expressionism to 1945 (one course from the 320 series)
GERM435 Expressionism to 1945 (one course from the 320 series)
GERM439 Selected Topics in German Literature (one course from the 320 series)

Culture Courses: 6 credits upper level minimum
Courses marked with * are taught in English; no prerequisites unless specified
*GERM280 German-American Cultural Contrasts
*GERM281 Women in German Literature & Society
*GERM282 Germanic Mythology
*GERM283 Viking Culture and Civilization
*GERM284 German Chivalric Culture
*GERM285 German Film and Literature
*GERM287 Ancient Celtic Culture and Civilization
GERM289 Selected Topics in the Cultures of the Germanic Speaking Countries
GERM299 Special Topics in Germanic Studies
*GERM368 Scandinavian Civilization
*GERM381 German Civilization I
*GERM382 German Civilization II
*GERM389 Topics in Germanic Culture
GERM399 Selected Topics in Germanic Studies (dept permission)
GERM449 Selected Topics in Germanic Studies (dept permission)
*GERM463 The Icelandic Family Saga

*GERM475 Old Norse
GERM489 Selected Topics in Area Studies (GERM302)

Language of Instruction
No more than 9 credits of the 36 total required may be satisfied by courses taught in English. With the approval of the Germanic Studies advisor, up to 6 credits of these courses may be taken outside the department.

Study Abroad
Study Abroad is highly recommended. With the approval of the major advisor, courses taken through Study Abroad may be applied to the total of 36 credits, replacing courses on list above. Specific credits and equivalencies are determined by advisor on receipt of transcripts. Students are encouraged to save samples of work completed abroad to present to advisor upon their return.

Internships
Internships (GERM 386) are also encouraged. No more than 3 credits may be applied to the major. GERM386 may not replace the required 6 credits of upper-level courses in any of the three categories.

Government and Politics (GVPT)

College of Behavioral and Social Sciences
3140 Tydings Hall, 301-405-4156
www.bsos.umd.edu/gvpt
Chair: M. Lichbach (Prof & Chair)
Director: W. McIntosh (Assoc. Chair & Undergraduate Director), I. Morris (Graduate Director)
Professors: C. Alford, G. Alperovitz, K. Conca, S. Elkin, J. Gimpel, J. Glass, P. Herrnson, P. Huth, J. Oppenheimer, M. Pearson, G. Quester, S. Telhami, V. Tismaneanu, E. Uslaner, J. Wilkenfeld
Associate Professors: V. Haufler, B. Kaminski, K. Kaufmann, D. Lalman, F. Lee, K. Soltan, P. Swistak
Assistant Professors: A. Banks, J. Birnir, S. Croco, D.Corstange, D. Grob, M. Hanmer, S. Kastner, S. Kim, B. Mckenzie, S. Rouse, I. Ward
Lecturers: D. Grant-Wisdom, L. Vietri
Professors Emeriti: C. Butterworth, R. Claude, R. Davidson, T. Gurr (Dist. Univ. Prof.), M. Heisler, V. Marando, T. McNelly, W. Phillips, D. Piper, C. Stone

The Major

Government and Politics is one of the largest majors on campus with approximately 1,000 students taking courses in American politics, international relations, comparative politics, political theory, political philosophy, law, public policy, and environmental policy. Its large and diverse group of students are mentored by faculty through a variety of in and out of classroom experiences and have been extremely successful in garnering campus and national awards, acceptance to competitive law and graduate programs, and exciting careers in all levels of government and the private sector. Students also benefit from a large and active group of local alumni who have reached the highest levels of their respective careers and who actively meet, recruit, and mentor current students.

Program Objectives

The Department of Government and Politics offers programs for the general student as well as for students who are interested in careers in government, the public sector, foreign assignment, teaching, a variety of graduate programs, and law schools. Satisfactory completion of requirements leads to a Bachelor of Arts degree in Government and Politics.

The study of politics is both an ancient discipline and a modern social science. The origin of the discipline can be traced back to the earliest times when philosophers, statesmen, and citizens studied the nature of government, justice, responsibility, and the consequences of political action. More recently, the study of politics has also emphasized scientific analysis and methods of observations about politics. Today, the discipline reflects a broad effort to collect data about politics and governments utilizing relatively new techniques developed by all of the social sciences.

The Department of Government and Politics combines philosophical and scientific concerns in its overall program as well as in specific courses. It emphasizes such broad areas as political development, policy analysis, social justice, political economy, conflict, and human rights. These broad conceptual areas are integral components of study in the discipline. The areas are commonly referred to as American government and politics; comparative government; political theory; international relations; public administration; public law; public policy and political behavior.

Program Learning Outcomes

Having completed the degree program, students should have acquired the following knowledge and skills:

- An understanding of basic political science concepts including power, institutions, political systems, theories of the state, political conflict, citizenship, and contending analytical and theoretical approaches
- Proficiency in research and analytical skills using either quantitative methods and or library skills
- A basic knowledge of the methods, approaches, or theories used in accumulating and interpreting information applicable to the discipline of political science
- Effective oral and written communication skills to clearly and coherently present information in the discipline of political science

Admission to the Major

Government and Politics is a Limited Enrollment Program that has special requirements for admission, such as minimum GPA guidelines and required courses. Students planning to transfer into the major should contact the department for details on Limited Enrollment requirements. Students admitted as incoming freshmen will have their academic review after 45 credits.

Requirements for the Major

Government and Politics students must complete a minimum 36 credit hours within GVPT, but may take no more than 42 credit hours total within the major. A minimum grade of C is required in each course, and at least 18 of the 36 credits must be in upper-level courses. Students exceeding the 42 credit limit will not be allowed to count additional GVPT credits within the 120 needed to graduate. For every additional GVPT credit, students must complete an additional credit outside of the GVPT major to graduate. (AB and IB credits are included in this calculation).

	Required Courses	**Credits**
GVPT100	Principles of Government and Politics	3
GVPT241	The Study of Political Philosophy: Ancient and Modern	3
ECON200	Principles of Microeconomics	4
	One from:	3
GVPT170 OR	American Government	
GVPT171	American Government	

	One from:	3-4
MATH111	Introduction to Probability	
MATH220	Elementary Calculus	
MATH140	Calculus	
STAT100	Introduction to Statistics	
GVPT Electives	Total of 27 GVPT credits, 18 credits of which must be at the 300-400 level	27
SKILLS REQUIREMENT	Completion of a foreign language through the entire elementary level AND a quantitative course from an approved list AND Another foreign language or quantitative skills course from an approved list. See GVPT website for more details.	minimum of 9
SUPPORTING SEQUENCE	Five courses in another major outside of Government & Politics, with at least two courses at the 300-400 level. Approved by GVPT Advisor.	15

All majors must complete a secondary area of concentration in another department or approved disciplinary area. All courses used to satisfy these requirements must be completed with a minimum grade of C. Students should consult with an advisor.

Requirements for the Minor

Minor in International Development and Conflict Management

The Minor in International Development and Conflict Management is a 19-credit, undergraduate program of instruction for students aspiring to a profession in the fields of conflict resolution, international development, and humanitarian relief.

Applications are accepted in the Spring and accepted students begin the program the following Fall. Students applying for the program must be entering their sophomore, junior, or senior year of undergraduate work. Applicants must be full-time students in good standing, with a cumulative GPA of 2.5 or better. Up to 35 students are accepted into the program each year.

Advising for the minor is conducted through the Center for International Development and Conflict Management directly, not the Department of Government and Politics. For more information about the minor and for application materials, please visit: www.cidcm.umd.edu/minor/
Requirements for the minor include the following coursework:

	Required Courses	**Credits**
GVPT 354	Peacebuilding, Post-Conflict Reconstruction, and International Development	3
STAT	One statistics course from approved list	3
GVPT 355	Capstone I: International Development and Conflict Management	3
GVPT 356	Capstone II: International Development and Conflict Management	3
ELECT	Elective courses from approved list (2 courses)	6
BSOS 388E	Behavioral and Social Sciences Special Topics: CIDCM Minor Practicum	1
	Total Credits	**19**

Note: Six credits (or two courses) can be double counted for your major and the minor. All classes must be completed after acceptance into the minor program, with the exception of the statistics requirement.

Advising

Academic advisors are available to assist students in finding internships, learning about academic opportunities, clarifying post-graduation plans, and general questions.

Academic advising is available daily on a walk-in or appointment basis in the Undergraduate Advising Office, 3104 Tydings Hall. Walk-in schedules are posted on-line at www.bsos.umd.edu/GVPT/undergraduate.

Students are encouraged to see an advisor each semester to ensure understanding of major requirements and to review students' progress within the major. All students are required to see an advisor before they register for their senior year of classes, typically between 75 and 89 credits earned.

Undergraduate Research Experiences

Undergraduate GVPT majors are strongly encouraged to participate in independent research with GVPT faculty members. The independent study option provides students opportunities to work one-on-one with a faculty member doing research on a topic of the student's choosing. Students should expect to devote approximately 12 hours per week for 16 weeks to the independent study. Students should also expect to write a final research paper no less than 40 pages in length. GVPT Advisors are available to assist students in identifying appropriate research topics and in selecting the GVPT faculty mentor.

Only six hours of graded GVPT independent study credit will apply toward the 36 hours needed in the major. Internships are generally open only to GVPT majors with junior standing and a 3.0 GPA.

Internships

Undergraduate GVPT majors are strongly encouraged to take advantage of the university's close proximity to Washington D.C. and Annapolis by completing at least one internship experience. The GVPT Advising Office advertises internship experiences weekly in the undergraduate newsletter, and advisors can assist students in identifying other internship opportunities.

The department offers two programs through which students can receive academic credit for their internship - the Public Policy Internship Program and the Capitol Hill Internship program. Information for both of these courses is available on the GVPT website: www.bsos.umd.edu/GVPT/undergraduate.

Only six hours of graded GVPT internship credit will apply toward the 36 hours needed in the major. Internship credit graded on a pass/fail basis may not be used to satisfy the GVPT major requirements. In no cases may more than 12 internship credits be counted towards the 120 credits needed to graduate. Internships are generally open only to GVPT majors with junior standing and a 3.0 GPA.

Honors Program

The aim of the Government and Politics Honors Program is to encourage students with outstanding abilities to accelerate their development and intellectual growth under conditions of greater freedom, greater responsibility, and more individual supervision from their instructors. The program also seeks to provide a community within which students can meet one another and further develop their interests in political science and public affairs.

All students majoring in government may apply for admission to the GVPT Honors Program. Additional information concerning the Honors Program may be obtained online at www.bsos.umd.edu/gvpt/honors.

Student Societies and Professional Organizations

Pi Sigma Alpha, the National Political Science Honor Society, is the only honor society for college students of political science and government in the United States. The Alpha Zeta chapter of Pi Sigma Alpha was founded in 1938 at the University of Maryland, College Park. Since that time, the chapter has hosted a variety of activities and worked closely with the Department of Government & Politics. The chapter currently has about 80 members. For more information, please visit: www.bsos.umd.edu/gvpt/psa.

Black Political Student Association was founded in 2008 at the University of Maryland, College Park. The goal of the Black Political Student Association (BPSA) is to unite political-minded university students and discuss issues going on in the world. BPSA aims to build solidarity between Black Government & Politics majors, ignite interest in community involvement, provide opportunities for professional development, and get more Black students involved in the Government & Politics program at UMD.

Scholarships and Financial Assistance

GVPT students are encouraged to apply for Government and Politics Departmental Scholarships and outside scholarship opportunities. For more information on these scholarships, please visit: www.bsos.umd.edu/gvpt/undergraduate/scholarships.

The Office of Student Financial Aid (OSFA) administers all types of federal, state and institutional financial assistance programs and, in cooperation with other university offices, participates in the awarding of scholarships to deserving students. For information, please visit: www.financialaid.umd.edu.

Awards and Recognition

Government and Politics students have had enormous success in winning campus and national awards. Many students have been chosen as university commencement speaker, university medal winner, selected for national undergraduate conferences, and won national scholarships for graduate and law school. The Director of Undergraduate Programs nominates deserving students for departmental and university awards and recognition, and students are informed through the advising office of new opportunities to apply.

Health

See Public and Community Health later in Chapter 7.

Hearing and Speech Sciences (HESP)

College of Behavioral and Social Sciences
0100 LeFrak Hall, 301-405-4213
www.bsos.umd.edu/hesp
Chair: N. Ratner
Professors: S. Gordon-Salant, F. Roth
Associate Professors: R. Newman
Assistant Professors: M. Chatterjee, T. Fitzgerald, Y. Shah, W. Tian
Lecturers: P. Bonelli, C. Brewer, D.Clark-Tippett, K. Davis, M. Dixon, E. Fallon, P. Fitzgibbons, W. Gaillard, D. Handy, M. Hawley, A. Kreisle, A. Lingaraj, M. McCabe, C. Oberzut, S. Palmer, R. Pinto, T. Riley, P. Schauer, L. Sherlock, V. Sisskin, K. Skinker (Dir of Undergraduate Programs), T. Walden, K. Webster, C. Worthington, C. Zalewski
Affiliate Professors: M. Stone
Adjunct Professors: B. Sonies (Res Prof)
Adjunct Associate Professors: A. Braun, G. Chi- Fishman, C. Ludlow
Professors Emeriti: G. Yeni-Komshian

The Major

Hearing and speech sciences is an inherently interdisciplinary field, integrating knowledge from the physical and biological sciences, medicine, psychology, linguistics, and education in order to understand human communication and its disorders. The department curriculum leads to the Bachelor of Arts degree. An undergraduate major in this field is an appropriate background for graduate training in Speech-Language Pathology or Audiology, as well as for graduate work in other disciplines requiring a knowledge of normal or disordered speech, language, or hearing. The student who wishes to work professionally as a speech-language pathologist or audiologist must obtain a graduate degree in order to meet national certification requirements, and most state licensure laws.

The hearing and speech sciences curriculum is designed in part to provide supporting course work for majors in related fields, so most course offerings are available to both departmental majors and non-majors. Courses offered by this department may be found under the following acronym: HESP. Permission of an instructor may be obtained to waive course prerequisites for non-majors wishing to take hearing and speech courses of interest.

Program Objectives

The Department of Hearing and Speech Sciences strives to provide state-of-the-art teaching, research, and clinical services in the areas of Audiology and Speech-Language Pathology.

Program Learning Outcomes

The undergraduate curriculum in Hearing and Speech Sciences is structured to provide adequate background for graduate training in Speech-Language Pathology, Audiology and Hearing, Language or Speech Sciences. Although required courses at the undergraduate level are identical for all majors, emphasis can be given to individual curricula through the selection of elective courses. Having completed the degree program, students should have acquired the following knowledge and skills:

- Students will demonstrate application of fundamental concepts of basic sciences (i.e., biological, physical, mathematics/statistics, behavioral and social sciences) to the hearing and speech sciences discipline.
- Students will demonstrate knowledge of basic communication processes.
- Students will demonstrate knowledge of speech, language, and hearing disorders and differences, including etiologies, and characteristics, prevention, assessment, and intervention.

Academic Programs and Departmental Facilities

Hearing and Speech Sciences offers students numerous opportunities to interact with faculty in teaching, research and clinical experiences. The Hearing and Speech Clinic as well as the Language Learning Early Advantage Program (LEAP preschool) in Lefrak Hall allows students to observe the interaction between clinical and research efforts.

Requirements for the Major

A student majoring in hearing and speech sciences must complete 33 semester hours of required courses and six semester hours of electives in the department to satisfy major course requirements. No course with a grade less than C may count toward major course requirements. In addition to the 36 semester hours needed for a major, 9 semester hours of supporting courses in statistics and other related fields are required. For these 12 hours, a C average is required. In addition, when a HESP course has a listed pre-requisite, this pre-requisite must have been completed with a grade of C or better before registration in the subsequent course will be approved.

A guide to the major is available through the department office in room 0100 Lefrak or on the departmental website at www.bsos.umd.edu/hesp/

Course sequencing is extremely important within this major. Advising for majors is mandatory.

	Required Courses	**Credits**
HESP120	Introduction to Linguistics	3
HESP202	Introduction to Hearing and Speech Sciences	3
HESP300	Introduction to Psycholinguistics	3
HESP305	Anatomy and Physiology of the Speech Mechanism	3
HESP311	Anatomy, Physiology, and Pathology of the Auditory System	3
HESP400	Speech and Language Development in Children	3
HESP403	Introduction to Phonetic Science	3
HESPxx	Any two of: HESP 402, 404, 406, 410	6
HESP407	Bases of Hearing Science	3
HESP411	Introduction to Audiology	3
	Electives	
	Students must take six credits from the following offerings:	
HESP386	Experiential Learning	3
HESP388	Undergraduate Research Internship	
HESP389	LEAP Classroom Internship	
HESP402	Speech Pathology I: Language Disorders in Children	3
HESP404	Speech Pathology II: Voice and Fluency Disorders	3
HESP406	Speech Pathology III: Aphasia and Neuromotor Disorders	3
HESP410	Organic Speech Disorders	3
HESP413	Aural Rehabilitation/Habilitation	3
HESP417	Principles and Methods in Speech Language Pathology and Audiology	3
HESP418	Clinical Practice in Speech Language Pathology and Audiology	3
HESP420	Deafness and sign language	3
HESP422	Neurological bases of human communication	3
HESP469	Honors thesis research	3
HESP498	Seminar in Hearing and Speech Sciences (topics vary)	3
HESP499	Independent Study	3
	Allied/Related Fields (12 credits)	
	In addition to a required statistics course, the student will take nine credits from course offerings in Allied/Related Fields and PSYC 100. A full list of these offerings is available in the Hearing and Speech Sciences Depart A full list of these offerings is available in the Hearing and Speech Sciences Department undergraduate guide.	
PSYC100	Introduction to Psychology	3
MATH/STAT	one Statistics course	3
ELECT	two courses from Allied/Related Fields	6

Finally, HESP majors must complete BOTH a biological and a physical science to satisfy national certification standards for speech-language pathologists and audiologists.

Requirements for the Minor

Requirements for the HESP minor include the following coursework:

HESP 202-Introduction to Hearing and Speech Sciences

HESP 300-Introduction to Psycholinguistics

HESP 400-Child Language Acquisition

HESP 403-Phonetics

HESP 407-Hearing Science

PLUS 2 courses in one of the two elective areas:

Elective option 1 (Speech-Language Pathology Focus)

HESP 305-Anatomy/Physiology of the Speech Mechanism, and

HESP 402, 404, 406, 410

Elective option 2 (Audiology focus)

HESP 311-Anatomy/Physiology/Pathology of the Auditory Mechanism, and

HESP 411-Introduction to Audiology

TOTAL CREDITS: 21

Notes:
All classes must be completed with a grade of C or better; as with HESP majors, students must obtain a grade of C or better in a class in order to enroll in any courses that require that class as a pre-requisite.

This course sequence acquaints the student with the primary basic science background in the speech, language and hearing sciences, and permits the student to select two courses in the specific professional areas of speech, language or hearing, based on the student's primary interest area.

This minor is designed for the student in other majors (such as Psychology, Education, Linguistics, FOLA, etc.) who may have plans to attend graduate school in the fields of Speech-Language Pathology or Audiology. These courses are widely viewed as pre-requisite for admission to such programs and constitute a proportion (but not the full extent) of classwork required for eventual post M.A. or post-Au.D. certification by the American Speech-Language-Hearing Association (ASHA) as either a Speech- Language Pathologist or Audiologist. Because both graduate programs and ASHA may require additional coursework, the student pursuing the HESP minor is strongly encouraged to meet with a HESP academic advisor to ensure that eventual educational goals are properly addressed. The HESP minor does not qualify an individual to work professionally as a Speech-Language Pathologist or Audiologist, but does provide a proportion of the coursework required to practice in the State of Maryland as a Speech-Language Pathology Assistant.

Advising

Advising in hearing and speech sciences is mandatory. Information on advising for hearing and speech sciences may be obtained by calling the department office at 301-405-4214 or the advising office at 301-405-4236. Advising appointments may be made at www.bsos.umd.edu/hesp/hespapptcalendar/. A guide to undergraduate advising is available on the web at www.bsos.umd.edu/hesp.

Undergraduate Research Experiences

Undergraduates may work with a faculty member in the Hearing and Speech Sciences Department through the Undergraduate Research Assistant Program (URAP). This program provides students with an opportunity to work with faculty members on a one-to-one basis as a research assistant. The student is expected to work 4-6 hours per week, for one semester. Some academic credit may be obtained through enrollment in HESP 499. To obtain credit the student must seek prior approval from the faculty member. Only 3 credits of HESP 499 may be applied to the HESP major if using the regular grading method (not Pass/Fail). Please note that individual professors may have special requirements for participation in the program. It is advised that you contact the professor that you wish to work with before beginning the URAP program. More information on the URAP program (including a listing of participating faculty members) is available at www.ugresearch.umd.edu.

Honors Program

An Honors option in HESP is available to students. The objective of the HESP Honors program is to encourage and recognize superior academic achievement and scholarship by providing opportunities for interested, capable, and energetic undergraduates to engage in independent study. A research project will be conducted under the supervision of a faculty mentor and will result in an Honors thesis. This option must be declared prior to the junior year, and requires a 3.5 or higher GPA overall and in HESP coursework. For specific information on procedures for completing the Honors option, consult the Undergraduate Director or the department website.

Student Societies and Professional Organizations

Hearing and speech majors are invited to join the University of Maryland's Chapter of the National Student Speech-Language and Hearing Association (NSSLHA). Activities include fund raising, educational speakers, and community service activities. Further information may be obtained on the department website.

Scholarships and Financial Assistance

The Office of Student Financial Aid (OSFA) administers all types of federal, state and institutional financial assistance programs and, in cooperation with other university offices, participates in the awarding of scholarships to deserving students. For information, visit: www.financialaid.umd.edu.

Hebrew

See "Other Language Programs" in the School of Languages, Literatures and Cultures entry for more information.

History (HIST)

College of Arts and Humanities
2115 Francis Scott Key Hall, 301-405-4265
www.history.umd.edu
Chair: R. Price (Prof & Chair)
Professors: I. Berlin (Distinguished University Professor), A. Eckstein, R. Friedel, J. Gilbert (Distinguished University Professor), G. Gullickson, J. Harris (Prof & Dean), J. Herf, K. Holum, J. Lampe, H. Lapin, S. Michel, M. Rozenblit, D. Sutherland, M. Vaughan, S. Zhang
Associate Professors: E. Barkley Brown, B. Cooperman, M. David-Fox, D. Freund, J. Gao, S. Giovacchini, J. Greene, D. Grimsted, P. Landau, C. Lyons, M. Mayo, A. Moss, R. Muncy, W. Ridgway (Assoc Prof & Assoc Chair), K. Rosemblatt, L. Rowland, D. Sicilia, P. Soergel, J. Sumida, D. Williams, T. Zeller, M. Zilfi
Assistant Professors: R. Bell, A. Borrut, M. Bradbury, A. Caneque, K. David-Fox, H. Jones, L. Mar, E. Milam, D. Sartorius, J. Wasilewski, P. Wien
Lecturers: C. Lilley, D. McNeilly, B. Mendelsohn, A. Rush, J. Rutenburg, E. Smead
Affiliate Associate Professors: J. Taddeo (Visit Assoc Prof)

Affiliate Assistant Professors: S. Baron (Visit Asst Prof)
Professors Emeriti: H. Belz (Prof Emeritus), M. Breslow (Assoc Prof Emeritus), S. Brush (Dist Univ Prof Emeritus), G. Callcott (Prof Emeritus), J. Cockburn (Prof Emeritus), W. Cole (Prof Emeritus), E. Evans (Prof Emeritus), C. Foust (Prof Emeritus), L. Harlan (Dist Univ Prof Emeritus), J. Henretta (Prof Emeritus), G. Kent (Prof Emeritus), G. Majeska (Assoc Prof Emeritus), A. Olson (Prof Emerita), K. Olson (Prof Emeritus), E. Smith (Prof Emeritus), J. Warren (Prof Emeritus), W. Wright (Prof Emeritus), G. Yaney (Prof Emeritus)

The Major

The Department of History seeks to broaden the student's cultural background through the study of history and to provide preparation for those interested in publishing, teaching, museum work, law, journalism, civil service, military, archival and library work, diplomacy, business school, and graduate study.

Undergraduate advisors assist each major in planning a curriculum to meet his or her personal interests. We expect students to meet with a history undergraduate advisor once every semester.

Courses offered by the Department of History may be found under the acronym HIST.

Requirements for the Major

Requirements for the History major are 39 hours of history course work distributed as follows: 12 hours in 100-200 level introductory courses selected from at least two general geographical fields of history and including History 208; 15 hours in one major area of concentration (see below); nine hours of history in at least two major areas other than the area of concentration; History 408. All courses for the major must be completed with a minimum grade of C, and 21 hours of the 39 total hours must be at the junior-senior (300-400) level.

At least one course (three credits), must be taken from an approved list of courses on regions outside both Europe and the U.S. The list may be obtained from the History Undergraduate Advisor's Office.

A.P. and I.B. credits are accepted.

	Credits
Introductory Courses	**12**
1. To be taken at the 100-200 level taken in at least two geographical fields. 2. One of these must be History 208. 3. In considering courses that will fulfill this requirement, students are encouraged to: • select at least two courses in a sequence • select at least one course before 1500 and one course after 1500 • sample both regional and topical course offerings. Students will normally take one or more introductory courses within their major area of concentration	
Major Area of Concentration	**15**
Students may choose an area of concentration that is either geographic, chronological, or thematic. Areas include: ***Geographic regions:*** Africa, Britain and Western Europe, East Asia, Eastern Europe and Russia, Latin and South America, Middle East, United States; ***Chronological periods:*** Ancient, Medieval and Early Modern Europe, 20th Century World; ***Themes:*** African-American, Economic and Business, Jewish, Military, Religious, Science and Technology, Social and Cultural, Women and Gender.	
Nine Hours of History in at Least Two Areas Outside the Area of Concentration	**9**
1. Students are encouraged to select mainly upper-level courses. 2. Students are encouraged to consider regional diversity.	
Capstone	**3**
History 408 will be taken in the senior year and may be inside or outside the area of concentration.	
Supporting Courses Outside History	**9**
To be taken at the 300-400 level in appropriate supporting courses; the courses do not all have to be in the same department.Supporting courses should study some aspect of culture and society as taught by other disciplines. A minimum grade of C is required.	

Requirements for the Minor

Minor in Middle Eastern Studies

Advisor: Professor Zilfi; mzilfi@umd.edu; 301-405-4270

Requirements: 15 credits (5 courses) towards the Minor in Middle Eastern Studies. Coursework must be distributed to meet the overlapping requirements below. (For example, PHIL 416: Medieval Philosophy can be used to meet both the pre-modern requirement and the upper-division requirement.)

> ***6 credits:*** At least one course each in two geographical, linguistic, cultural, or religious areas. These may include the following: (a) the Arab world; (b) Iran Iran and the Iranian world; (c) Jewish and Israel; (d) Turkish and Ottoman; and (e) Diaspora Studies. Other areas of concentration may be considered and require the advisor's approval.
>
> ***6 credits:*** At least two courses (6 credits) must focus on the pre-modern (pre-20th century). Students may fulfill this requirement through their area distribution or elective courses.
>
> ***3 credits:*** The balance of credits consists of electives and may be selected from the list of approved Middle East Studies courses.

- A minimum of 3 courses (9 credits) must be at the upper level.
- All credits must be earned with a grade of 'C' or above.
- A list of qualifying courses in each category is available from the academic advisor of the minor.
- Up to 3 credits of language instruction (Arabic, Hebrew or Persian; others by petition) may be credited toward the Minor.

Restrictions:

- Students enrolled in the Jewish Studies Major are not eligible to enroll in the Minor.
- At least six credits of upper-level credit must be taken at the University of Maryland.
- No more than six credits may be taken at an institution other than Maryland.
- In keeping with University policy, no more than six credits may be simultaneously applied to the major.

Advising

Academic advising is available daily on a walk-in basis in the History Undergraduate Advising Office, 2131C Key Hall.

Internships

Juniors and seniors may take up to 6 hours of credit in historically-related internships, of which three hours may be counted toward the 39 hours in history required for graduation. All internships must have a direct relationship to the work of understanding, interpreting, presenting or preserving history and/or historical evidence. Students must have both a site supervisor at the place of the internship and a history faculty mentor for their internship project. Student internships must be approved by the History Department Internship Coordinator. Internships are generally only open to students who have an overall GPA of 2.5 or better.

Honors Program

The purpose of the Honors Program in History is to allow promising undergraduates to develop historical and historiographical skills, in an atmosphere that guarantees personal attention and that encourages hard work and excellence. The Program is a four-semester sequence, the culmination of which is a senior thesis--a major research paper of 80 pages or more, written under the close supervision of a faculty mentor. There are two phases to the program: in the junior year, students are introduced to the problems of history-writing at a sophisticated level, via two seminars on problems of historiography; in the senior year they complete two supervised courses in the writing of the senior thesis.

Student Societies and Professional Organizations

History majors and other interested students are encouraged to join the History Undergraduate Association (HUA), which sponsors events such as an annual Film Festival and special seminars and activities. History majors edit and publish a web-based journal, *Janus: The University of Maryland Undergraduate History Journal*, which features student writing relevant to history. *Janus* also sponsors an annual conference where undergraduates present their research and are awarded prizes. The department also hosts the Beta-Omega chapter of Phi Alpha Theta, the national history honors society. Information on these organizations can be obtained from the History Undergraduate Office, 2131 Francis Scott Key Hall.

Horticulture

Agronomy and Horticulture reside within the single major, Plant Sciences (PLSC). See Plant Sciences elsewhere in Chapter 7.

Human Development/Institute for Child Study (EDHD)

College of Education
3304 Benjamin Building, 301-405-2827
www.education.umd.edu/EDHD
Chair: A. Wigfield (Prof & Dir, Prof & Chair)
Director: A. Battle (Asst Dir)
Professors: P. Alexander, N. Fox, M. Killen, K. Rubin, J. Torney-Purta, K. Wentzel
Associate Professors: N. Cabrera, B. Jones Harden, E. Klein, R. Marcus, E. Robertson-Tchabo, M. Wang
Assistant Professors: D. Bolger (Asst Prof, Aff Asst Prof), N. Hall (Asst Prof), G. Ramani (Asst Prof)
Lecturers: C. Corbin (Senior Lecturer, Lecturer), M. Hurley (Lecturer)
Professors Emeriti: S. Bennett, J. Eliot, C. Flatter, A. Gardner, J. Goering, J. Guthrie (Prof Emeritus), A. Hatfield, R. Huebner, S. Porges (Prof Emeritus), B. Tyler

The Major

The Department of Human Development offers: 1) a major in Early Childhood Education; 2) a minor in Human Development; 3) undergraduate courses in human development at the 200, 300 and 400 levels; 4) graduate programs leading to the M.A., M.Ed., Ed.D., and Ph.D. degrees and the A.G.S. certificate; and 5) field experiences and internships to develop competence in applying theory to practice in schools and other settings. Specializations in educational psychology and developmental sciences are available at the doctoral level. Faculty research in areas such as educational psychology, social, physiological, cognitive and moral development, achievement motivation, and early childhood education enhance the instructional program.

Faculty in the Department of Human Development teach courses designed for pre-service and in-service teachers in the College of Education as well as students from other departments across campus who are seeking an education minor or who desire to work with children and adolescents in school settings. These courses focus on child and adolescent development, language acquisition, cognition, motivation, and reading. In addition, the department offers undergraduate courses that help students meet CORE and other degree requirements.

The Institute for Child Study provides consultant services and staff development for preschool programs, parent groups, court systems, mental health agencies, and other organizations involved in helping relationships. Undergraduate and graduate students may participate in these programs through course work and internships.

Graduates of the Early Childhood Education program receive a Bachelor of Science degree and meet the requirements for teaching preschool, kindergarten and primary grades.

Courses offered by this department may be found under the following acronym: EDHD

Program Learning Outcomes

Program learning outcomes for the Early Childhood Teacher Education Major

1. Content Knowledge: Early childhood teacher candidates have in-depth knowledge of the subject matter that they teach as described in professional (National Association for the Education of Young Children (NAEYC), state (MSDE), and institutional standards. They demonstrate their knowledge through inquiry, critical analysis, and synthesis of the subject.

2. Pedagogical and Professional Knowledge, Skills, and Dispositions: Early childhood teacher education candidates can effectively plan classroom-based instruction or activities for their roles as early childhood educators. Candidates' knowledge, skills, and dispositions are applied effectively in practice.

3. Effects on Student Learning: Early childhood education teacher candidates accurately assess and analyze student learning, make appropriate adjustments to instruction, monitor student learning, and have a positive effect on learning for all students.

4. Professional Dispositions: Early childhood education teacher candidates are able to work with students, families, and communities in ways that reflect the dispositions expected of professional educators as delineated in professional (NAEYC), state (MSDE), and institutional standards.

5. Competency on the Maryland Teacher Technology Standards: Early childhood education teacher candidates demonstrate proficiency in each of the seven *Maryland Teacher Technology Standards.*

Academic Programs and Departmental Facilities

The department houses the Center for Children, Relationships and Culture and The Maryland Literacy Research Center, both of which provide research opportunities for undergraduate students. Faculty in the department often provide undergraduates with research experiences in their individual laboratories.

The Center for Young Children provides developmentally appropriate education and care for children aged three through kindergarten. The Center provides research opportunities that involve observing children in their classrooms as part of course requirements in various EDHD undergraduate courses.

Admission to the Major

Application to the Early Childhood Teacher Education Professional Program must be made by May 1, prior to beginning professional courses. Admission procedures and criteria are explained in theCollege of Education entry in Chapter Six. The Early Childhood program adheres to the College's professional education admissions requirements. In addition to the College of Education selective admissions criteria, early childhood majors must meet the following gateway requirements:

> (1) Completion of a four-credit CORE laboratory physical science, a four-credit CORE laboratory biological science, Elements of Numbers and Operations (MATH 212), and Elements of Geometry and Measurement (MATH 213) with a minimum grade of C in each class and a 2.7 cumulative GPA across all four courses.
>
> (2) Completion of Exploring Teaching in Early Childhood Education (EDHD 220 or approved equivalent) with a grade of B or better and EDHD 210.

For additional details regarding the professional education admission requirements, see Chapter 6. Detailed information regarding the gateway requirements for the early childhood education program is available in the Office of Student Services, Room 1204 Benjamin.

Placement in Courses

All Early Childhood Teacher Education Programs have designated pre-professional courses and a specified sequence of professional courses. Before students may enroll in courses identified as part of the professional sequence, they must first gain admission to the Early Childhood Teacher Education Program.

Requirements for the Major

The following courses are required in the program of studies for Early Childhood and may also satisfy the University's general education requirements. See departmental worksheets and advisors for additional information.

PSYC100	Introduction to Psychology	3
SOCIAL SCI	ANTH, ECON, GEOG, GVPT, HIST, SOCY	3
HIST156	History of the US to 1865	3
BIO SCI	Biological Science with Lab	4
PHY SCI	ASTR, CHEM, GEOL, PHYS with Lab	4
EDPS210 **OR**	Historical & Philosophical Perspectives on Education **OR**	3
EDPS301	Foundations of Education	3

Other Pre-Professional Requirements

MATH 212	Elements of Numbers & Operations	3
MATH213	Elements of Geometry & Measurement	3
	One of the following:	
CREATIVE ART	KNES 181, 182, 183, 421, THET120, EDCI301, ARTT100 or 110, MUED155	2-3
EDHD210	Foundations of ECE	
EDHD220	Exploring Teaching in ECE	3
EDHD285	Designing Multimedia Computer Environments for Learners	3
EDHD222	Literature in the Early Childhood Classroom	3

Professional Courses
The Early Childhood Professional Block I starts only in the Fall semester and is a prerequisite to Professional Block II which is offered only in the spring semester. Following Professional Block II is Professional Block III, which is taken in the Fall semester preceding student teaching. A cumulative grade point average of 2.5 must be maintained after admission to Early Childhood Education program. All pre-professional requirements and professional courses must be completed with a minimum grade of C must be completed prior to student teaching. Teacher candidates must obtain satisfactory evaluations on theCollege of Education Foundational Competencies/Technical Standards. See advisor for program planning. Additional information regarding the requirements for Student Teaching is included in the Colle College of Education entry in Chapter 6.

Professional Block I: (Fall)

EDHD425	Language Development and Reading Acquisition	3
EDHD419A	Human Development and Learning	3
EDSP470	Introduction to Special Education	3

Professional Block II: (Spring)

EDHD424	Cultural and Community Perspectives	3
EDHD314	Reading in the EC Classroom-Part I	3
EDHD 313	Creative Experiences for the Young Child	3
EDHD 419B	Human Development and Learning	3
EDHD 415	Social Competence in Young Children	3

Professional Block III: (Fall)

EDHD427	Constructing and Integrating the EC Curriculum	3
EDHD323	Children Study Their World	2
EDHD321	The Young Child as Scientist	2
EDHD322	The Young Child as Mathematician	3
EDHD315	Reading in the EC Classroom-Part II	3
EDHD435	Effective Components of EC Classrooms	3

Professional Block IV: (Spring)

EDHD432	Student Teaching	12
EDCI464	Assessment of Reading	3

Requirements for the Minor

The minor provides a rigorous foundation in Human Development for students who wish to support their major field of study with knowledge of human growth and development across multiple domains and developmental stages, as well as knowledge related to principles of teaching and learning and/or who desire active participation in human development research under the supervision of Human Development faculty in laboratory settings. Students with a 2.0 minimum grade point average may seek enrollment in the program, during which they must complete 15-24 credits of coursework. Only courses in which the student has earned a grade of "C" or higher will count toward the minor. Students must take EDHD 306 and choose other courses from at least two of the other areas of human development study, as outlined below Students interested in taking this minor should contact the Human Development undergraduate minor advisor, Dr. Megan Hurley, at mhurley1@umd.edu or 301-405-7233 for more information or to arrange an advising appointment.

Area 1	Area 2	Area 3	Area 4
Cognitive	**Social**	**Research**	**Lifespan**
EDHD420	EDHD430	EDHD306**	EDHD230***
EDHD425	EDHD445		EDHD320
EDHD 426	HONR 219Y**		EDHD 400
EDHD 460	EDHD 498B***		EDHD 401
	HONR 348R***		EDHD 411
	CPSP 379E***		EDHD 413

**319 (Selected Topics in HD); 386 (Experiential Learning); 498 (Special Problems in Education)*
**These courses require a faculty advisor*
***EDHD 306 cannot be excluded from any course plan; it is required for all EDHD minors.*
****CORE designated course offerings*

Advising

Advising is mandatory for all students desiring acceptance into the Early Childhood Teacher Education Program. Students will receive advising through individual advising appointments held during the early registration period. Information regarding the advising appointment schedule will be available each semester in Room 1117J Benjamin. Walk-in hours are also posted each semester.

Dr. Megan Hurley serves as the advisor for the undergraduate minor in EDHD and can be reached at mhurley1@umd.edu.

Undergraduate Research Experiences

There are a variety of opportunities for undergraduate students to participate in research in the department. Faculty's research focuses on a wide number of topics pertaining to human development and learning.

Honors Program

The department offers two University Honors seminars:

HONR 219Y: Merging the Multiple Me's: The Developmental Origins of the Integrated Young Adult Self

HONR 228R: Parenting and Poverty: The Effects of Growing Up Poor on Children's Development

Student Societies and Professional Organizations

Student Educators of Young Children (SEYC) at the University of Maryland

> SEYC is a student organization sponsored by the Maryland Association for the Education of Young Children (MDAEYC), an affiliate of the National Association for the Education of Young Children (NAEYC).
>
> Through various leadership and community service activities, this group emphasizes advocacy for high-quality early childhood education. They seek to improve the professional practice by promoting excellence in early childhood education and valuing the importance and diversity of children's families and communities.

Scholarships and Financial Assistance

The department offers the Marie Davidson scholarship to two undergraduate Early Childhood Education majors each year.

"The Office of Student Financial Aid (OSFA) administers all types of federal, state and institutional financial assistance programs and, in cooperation with other university offices, participates in the awarding of scholarships to deserving students. For information, visit: www.financialaid.umd.edu "

Awards and Recognition

Early Childhood majors are eligible for the Ordwein Scholarship. Information is available in the Office of Student Services, Room 1204, Benjamin.

Individual Studies Program

0110 Hornbake Library, 301-314-0023
Director: Dr. Joan Burton
www.ivsp.umd.edu/

The Individual Studies Program (IVSP) enables UM students to design their own interdisciplinary majors, subject to a rigorous proposal process, when their educational goals cannot be reasonably achieved within an existing departmental curriculum. The Individual Studies Program leads to a Bachelor of Arts or Bachelor of Science degree. IVSP degree programs focus on academic and intellectual growth through interdisciplinary study. Training for a chosen profession is never the purpose of IVSP. Individually created student majors have recently included such titles as Peace and Justice Studies, Asian American Policy and Advocacy, Global Health, Urban Design and Studies, Digital Narratives, and Studies of the Mind and Brain.

For more information, see Office of Undergraduate Studies section in Chapter 6.

Information Systems: Specialization Business

For information, see Decision, Operations, and Information Technologies elsewhere in Chapter 7.

International Agriculture and Natural Resources Certificate

College of Agriculture and Natural Resources
1104 Symons Hall, 301-405-2078
www.agnr.umd.edu
sabrown@umd.edu

The Certificate in International Agriculture and Natural Resources is designed to enrich a student's major with a global perspective. The required courses focus on: language instruction; international aspects of the environment, agricultural production, development and sustainability, nutrition, and business; an experience abroad; and a capstone course regarding the student's travel abroad. Any student in good academic standing may participate in the certificate program.

Requirements for Certificate

The certificate requires at least 21 credits that may include courses taken toward other degree and CORE requirements. Upon successful completion of the courses, with a grade of C or better in each course and a recommendation of the Associate Dean of the College of Agriculture and Natural Resources, a certificate will be awarded. A notation of the award of the certificate will be included on the student's transcript. In order to receive the certificate, students must have completed all requirements for a bachelor's degree.

Foreign Language
6-8 credits in a foreign language

International Courses
At least 9 credits from the following list of courses, at least 3 of these courses must be in the College of Agriculture and Natural Resources for students not majoring in a program outside of the College of Agriculture and Natural Resources:

PLSC 303 International Crop Production

ENST 440 Crops, Soils, and Civilization

AREC 365 World Hunger, Population, and Food Supplies

AREC 433 Food and Agricultural Policy

BMGT 392 Introduction to International Business Management

BMGT 390 Competing on Quality in a Global Economy

BSCI 365 International Pesticide Problems and Solutions

GEOG 434 Agriculture and Rural Development

NFSC 425 International Nutrition

AREC 445 Agricultural Development, Population Growth, and the Environment

ECON 440 International Economics

GVPT 306 Global Ecopolitics

GEOG 422 Population Geography

Travel Study or Travel Abroad
Three to four credits of travel study or study abroad. Prerequisite: to have completed the foreign language course work. Prerequisite or co-requisite: six credits from the International Courses List. In order to qualify for the certificate, travel study and study abroad experiences require prior approval of Associate Dean of the College College of Agriculture and Natural Resources. For approval, travel experience must demonstrate significant learning opportunities in areas related to agriculture and natural resources and cultural immersion.

Travel Study Seminar
1 credit Travel Study Seminar. Prerequisite: completion of the travel study requirement.

This course will require student presentation of their travel experience including a paper, a poster presentation, as well as an oral presentation and discussion.

International Business

For information see Logistics, Business and Public Policy.

Italian (ITAL)

College of Arts and Humanities
3106 Jiménez Hall, 301- 405-4024
www.italian.umd.edu
:

Requirements for the Major

The Italian major is currently under review. Please contact Dr. Falvo at gfalvo@umd.edu for details.

Japanese (JAPN)

College of Arts and Humanities
2106 Jiménez Hall, 301-405-4239
www.japanese.umd.edu
:

The Major

The Japanese major provides the training and cultural background needed for entering East Asia-related careers in such fields as higher education, the arts, business, government, international relations, agriculture, or the media. Students may also consider a double major in Japanese and another discipline, such as business, international relations, economics, or journalism.

Requirements for the Major

After completing the prerequisite of one year of language (12 credits): JAPN 101 (Elementary Japanese I; six hours per week, fall); and JAPN 102 (Elementary Japanese II; six hours per week, spring), students must complete 42 credits for the major course requirements (24 language, six civilization/history, 12 elective).

Students must take language-acquisition courses sequentially. Once credit has been received in a higher-level language acquisition or grammar course, a lower-level course may not be taken for credit.

	Requirements	**Credits**
	Language:	
JAPN201	Intermediate Japanese I	6
JAPN202	Intermediate Japanese II	6
JAPN301	Advanced Japanese I	6
JAPN302	Advanced Japanese II	6
	Civilization/History:	
	Option I:	
HIST284	East Asian Civilization I	3
HIST483	History of Japan Since 1800	3
	Option II:	
HIST285	East Asian Civilization II	3
HIST482	History of Japan to 1800	3
ELECT	Electives (300-level or above)	12

Note: Electives must be in Japanese language, literature, linguistics, or other East Asian subjects (one must be in the area of Japanese linguistics and one in the area of Japanese literature), and are subject to approval by the student's advisor.

JEWISH STUDIES PROGRAM (JWST)

College of Arts and Humanities
0142 Holzapfel Hall, 301-405-4975
www.jewishstudies.umd.edu

jwst-contact@umd.edu
Director: H. Lapin (Prof & Dir)
Professors: A. Berlin, M. Rozenblit
Associate Professors: B. Cooperman, M. Grossman, C. Manekin, E. Zakim
Assistant Professors: S. Jelen, K. Manekin
Instructors: N. Levy
Affiliate Professors: C. Butterworth, N. Fox, J. Harris (Prof And Dean), J. Herf, K. Holum, R. Igel, S. Selden
Affiliate Associate Professors: H. Brodsky (Assoc Prof Emeritus), J. Freidenberg, G. Strauch
Visiting Faculty: E. Adler, M. Cohen, A. Feuer (Visit Asst Prof), E. Gonen, M. Isaacs, P. Scham (Visit Asst Prof)

The Major

The Jewish Studies major provides undergraduates with a framework for organized and interdisciplinary study of the history, philosophy, and literature of the Jews from antiquity to the present. Jewish Studies draws on a vast literature in a number of languages, especially Hebrew and Aramaic, and includes the Bible, the Talmud, and medieval and modern Hebrew literature. Yiddish language and literature comprise an important sub-field. Courses offered by this department may be found under the following acronym(s): JWST, HEBR

Program Objectives

The Meyerhoff Center for Jewish Studies encourages research and provides instruction about the rich history and culture of the Jewish people from earliest times to the present day. Dedicated to the highest standards of scholarship, the program offers a wide array of courses in Hebrew Language and Literature, Jewish History, Bible, Rabbinics, Jewish Philosophy, and Yiddish Language and Literature. These courses form one of the largest undergraduate Jewish Studies programs in North America. In addition, the Jewish Studies program supports faculty research projects and organizes frequent academic conferences and lectures in order to bring the fruits of scholarship to a wider public. The Jewish Studies Program seeks to provide undergraduate majors with an appreciation for the interdisciplinary nature of Jewish Studies, understanding that Jewish literary texts, Jewish history, and Jewish culture and thought are, to a large degree inseparable. Students are expected to master the Hebrew language and acquire facility in reading, understanding, analyzing and interpreting texts both in Hebrew and in English translation. In addition, students should be able to pursue independent research and to argue coherently and persuasively in writing.

Program Learning Outcomes

The Jewish Studies Program seeks to provide undergraduate majors with an appreciation for the interdisciplinary nature of Jewish Studies, understanding that Jewish literary texts, Jewish history, and Jewish culture and thought are to a large degree inseparable. Students who complete the major should have acquired the following knowledge and skills:

1. Mastery of modern Hebrew at the advanced level
2. Mastery of the chronological development and major themes of Jewish history and culture
3. Ability to read, analyze, and interpret texts in classical (biblical, rabbinic, medieval) and/or modern literary Hebrew
4. Ability to conduct independent research and analysis and represent their results in written form showing mastery of academic tools and formal conventions

Academic Programs and Departmental Facilities

Study Abroad

The Jewish Studies program encourages students to study internationally. In addition to programs run by the University, students study at academic programs in Israel, Europe, and elsewhere. In particular, majors studying in Israel gain the opportunity to improve their Hebrew language skills by taking ulpan, the intensive course in Hebrew offered at those universities, and by practicing their Hebrew with Israelis. In addition, students can take courses in Israeli society and politics, Middle East Studies, and other courses not usually offered at College Park. Scholarship funds are available to majors and non-majors. Please see the section on 'Scholarships and Financial Assistance' for more information.

The Library

The Jewish Studies program has a large and growing Judaica collection at the University of Maryland Libraries that aims to become a major resource and repository for the entire area. The collection includes materials in Jewish history, Hebrew and Yiddish literature, the Bible, Talmud, medieval philosophy, Jewish women, theater, Holocaust, and modern Israel. In addition to scholarly books and periodicals written in the English, German, Hebrew, Yiddish, Ladino, Arabic, French, Italian, and Slavic languages, the collection includes rare books, musical scores, video and audio recordings, facsimile copies of historical documents, and manuscripts.

Israel Studies

The recently opened Joseph and Alma Gildenhorn Institute for Israel Studies offers a wide array of lectures, programs, courses, and even study abroad opportunities. Jewish Studies majors and minors, as well as other students in the university, can benefit from these programs.

Requirements for the Major

The undergraduate major requires 48 semester hours (27 hours minimum at the 300-level or above). Students enroll in 39 credits of Jewish Studies courses, and 9 additional credits in supporting courses from a field or fields outside Jewish Studies. Jewish Studies courses for the major may include courses offered by Jewish Studies or cross-listed with other units.

By satisfying the Hebrew language requirements of the major, Jewish Studies majors will automatically fulfill the foreign language requirement of the College of Arts and Humanities. A minimum grade of C (2.0) is required in all courses offered toward major requirements.

1. Language Prerequisites
Please note: Students can declare the major at any time and take other Jewish Studies courses while they are working to satisfy these prerequisites.

Hebrew language skills corresponding to the second-year level (HEBR 212: Intermediate Hebrew II). Students may meet the prerequisite through successful completion of the lower-level Hebrew language sequence (HEBR 111, 112, 211, and 212, for 24 credits). Students with a background in Hebrew will be placed into the appropriate course by the Hebrew faculty. Students with a strong background in Hebrew may be deemed to have satisfied the Hebrew requirement by the Hebrew faculty.

2. Area Requirements (21 credits)
Majors in Jewish Studies complete requirements in Hebrew language and three general subject areas: History, Literature, and Culture. The distribution of these requirements is as follows.

A. Hebrew Language (9 credits)

- HEBR 313: Conversation and Composition I (3 credits)

- Six additional credits in advanced Hebrew language. Students should choose at least 3 credits that correspond to their area of specialization. Students may choose from:
  - HEBR 314: Conversation and Composition II (3 credits) *and the following Hebrew text courses:*
  - HEBR 381/JWST381: Introduction to Hebrew Cultural Studies (3)
  - JWST382/HEBR 382: Israeli Media (3)
  - JWST 459: Readings in Medieval Hebrew [*formerly JWST 466]* (3)
  - JWST 468: Readings in the Hebrew Bible (3)
  - JWST 469: Readings in Rabbinic Hebrew (3)
  - JWST 478: Readings in Modern Hebrew (3)
  - HEBR 498: Advanced Language Module for Jewish Studies (*a new variable credit course that can be taken as a 1 or more credit additions to other Jewish Studies courses to add an intense Hebrew text component to those courses. Arranged by permission of the course instructor)*
  - Other courses by special permission of the advisor.

B. History (6 credits)

- JWST 234: History of the Jewish People I (3)
- JWST 235: History of the Jewish People II (3)

C. Literature (3 credits)

- JWST 272: Introduction to Jewish Literature

D. Culture (3 credits): Students may choose from:

- JWST 250: Fundamental Concepts of Judaism
- JWST 251: Authority, Faith, and Reason in Judaism
- JWST 262: The Hebrew Bible: Narrative
- JWST 263: Hebrew Bible: Poetry and Prophecy
- JWST 304: Critical Approaches to Israeli Culture
- JWST 451: Issues in Jewish Ethics and Law
- JWST 491: Judaism and the Construction of Gender
- JWST 493: Jewish Women in International Perspective
- Others by petition

Majors may use an upper-level course taken to fulfill this requirement as part of their area of specialization, where appropriate and with the permission of the advisor. Students would then take an additional 3 credits of elective to satisfy the 48 credit requirement of the major.

3. Area of Specialization (12 credits):

In consultation with an advisor, majors plan an area of special emphasis. Examples include Jewish History, Jewish Literature and Culture in the Biblical and Classical Eras, Modern Jewish Literature, Modern Jewish Cultural Studies, Israeli Society. The total number of credits in the concentration is 12 credits, distributed as follows:

- Three Jewish Studies courses (9 credits; at least 6 credits at the 300-level or above) in the area of specialization.
- JWST 409: Research Seminar in Jewish Studies (3 credits), to be taken in year 3 or 4 of the major. Usually two sections are offered each semester, with varied topics. Students should consult with the advisor to find a section that best corresponds to their chosen area of specialization.

Please note: Students should choose a Hebrew text course in their area of specialization to satisfy their Hebrew language requirement.

4. Electives (6 credits)

Students take two Jewish Studies courses (6 credits) as electives toward their major. At least one course (3 credits) must be at the upper level.

5. Supporting Courses (9 credits)

Students take nine (9) credits in courses outside Jewish Studies, of which at least six (6) must be at the 300-level or above. Supporting courses are determined in consultation with the advisor. They should provide context for the area of specialization.

Requirements for the Minor

Minor in Jewish Studies

Requirements: 15 credits towards the Minor in Jewish Studies are to be distributed as follows:

History	3 credits
Literature	3 credits
Thought, religion, or cultural studies	3 credits
Electives	6 credits

- A minimum of 9 credits must be at the upper level.
- All credits must be earned with a grade of 'C' or above.
- A list of qualifying courses in each category is available from the Director of the JWST program.
- Up to 3 credits of lower-level Hebrew or Yiddish language study may be credited toward the Minor. In exceptional cases, students may petition to have other languages included.

Restrictions:

- Students enrolled in the Jewish Studies Major are not eligible to enroll in the Minor.
- At least six credits of upper-level credit must be taken at the University of Maryland.
- No more than six credits may be taken at an institution other than Maryland.
- In keeping with University policy, no more than six credits may also be applied to a major.

Minor in Religious Studies

Religious Studies is an interdisciplinary field that enables students to study the texts, culture, history, beliefs, and practices of the religions of the world, present and past. The minor in Religious Studies draws from a wide range of departments and programs (including Anthropology, Art History, Classics, English, History, Jewish Studies, and Philosophy) and offers the opportunity for both in-depth and wide-ranging study. A required core course, HIST 216, introduces students to religions of the world and to the academic study of religion. In addition to this course, students are required to take three courses at the upper level and another two at any level. Completion of coursework includes fulfillment of a breadth requirement, which demonstrates that students have been exposed to a variety of religious traditions, periods, and geographic regions. Selection of courses in consultation with the advisor will ensure that students complete this breadth requirement.

Among the regularly-offered courses that may be counted toward the minor are: ARTH 200, ARTH 201, ARTH 250, ARTH 290, ARTH 314, ARTH 376, CHIN 316, CLAS 170, CLAS 470, ENGL 262, ENGL 263, ENGL 277, ENGL 477, GERM 283, GERM 287, HIST 111, HIST 120, HIST 282, HIST 284, HIST 306, HIST 332, HIST 480, PHIL 236, and many courses in JWST and HONR. Other courses may be taken with the permission of the minor advisor.

Requirements:

- **HIST 216:** Introduction to the Study of World Religions.
- **Three courses at the 300-level or above.** These courses can be in any of a variety of subjects, chosen in consultation with an advisor. See Breadth requirement below.
- **Two additional courses at any level.** Chosen in consultation with an advisor. See Breadth requirement.

Breadth requirement
The breadth requirement has multiple facets, but many students will be able to fulfill all the aspects of the requirement with a single course.

A. Breadth of coverage: Courses must reflect focused study of at least two religious traditions (understood broadly to include Judaism, Christianity, Islam, Hinduism, Buddhism, and polytheistic religions).

B. Geographic breadth: Courses must be drawn from at least two geographic regions (understood broadly to include Europe, Asia, the Middle East, Africa, and the Americas).

C. Temporal breadth: Courses must be drawn from at least two temporal periods (understood broadly as antiquity, the medieval and early modern periods, and modernity).

D. Depth: At least one course must incorporate the focused study of a single religious tradition or cluster of traditions (see item A for traditions).

E. A student with a strong interest in religions of the ancient Mediterranean could complete the breadth requirement with a single course on African or Asian religion. A student with a strong interest in religion and literature could take most of their requirements in that category and complete the breadth requirement with a single in-depth traditions course (for example, from the "Islam" category). A student with focus in religions of America may need to take both an ancient course and a non-Western course.

- A minimum of 9 credits must be at the upper level.
- All courses must be passed with a grade of 'C' or above.
- A list of qualifying is available from the Director of the JWST program.
- At least six credits of upper-level credit must be taken at the University of Maryland.
- No more than six credits may be taken at an institution other than Maryland.
- In keeping with University policy, no more than six credits may also be applied to a major.

Advising

Departmental advising is mandatory each semester for all Jewish Studies majors. Please contact The Meyerhoff Center for Jewish Studies (jwst-advise@umd.edu) to set an appointment.

Honors Program

The Honors Program in Jewish Studies is designed to encourage Jewish Studies majors with excellent grades and strong academic interests to pursue an individual research project of their own design, in consultation with and under the direction of an advisor. The Program consists of twelve credits taken in a student's Junior and Senior years culminating in the writing of an honors thesis. Students who complete the Honors Program are deemed to have completed the research seminar requirement for the major, typically completed through JWST 309.

Junior Year : Students apply for admission to the Honors Program in the Fall of their Junior year, and, upon admission, enroll in the Honors Seminar (JWST 408) (3 credits) in the Spring of their Junior year. During this time students are expected to develop a general research plan to be approved by the prospective thesis advisor. Thesis advisors will generally belong to the regular or affiliate Jewish Studies faculty. Other faculty may serve as thesis advisor with the written permission of the Director of Undergraduate Studies.

Senior Year : In the Fall of their Senior year students select an upper-level course (3 credits) closely related to their research agenda in consultation with the advisor. This may include a regularly offered undergraduate course, independent study, in which case students are encouraged to apply for an Honors Option for that particular course. In addition, students may request permission to enroll in a graduate-level course to complete this part of their requirement. Students who enter the Honors Program with a clearly defined research interest may complete this requirement in their Junior year.

In addition, students take 6 credits of JWST 418: Honors Thesis Research, under the direction of their thesis advisor. Typically these will be divided between the Fall and Spring semesters. Students are expected to work out with their advisors clear goals that contribute to the thesis as a whole for each semester of thesis research, and will be graded each semester on the basis of having met those goals. In the second semester, the principal goal will be the completed thesis.

Scholarships and Financial Assistance

The Joseph and Rebecca Meyerhoff Center for Jewish Studies offers scholarships for study abroad and special domestic study programs that have a clear relationship to Jewish Studies. Students wishing to study in Israel are especially encouraged to attend. Applications for scholarships are accepted in March, with notification by early April. For information visit: www.jewishstudies.umd.edu/academic/scholarships.html or call the Center at 301 405 4975.

The Office of Student Financial Aid (OSFA) administers all types of federal, state and institutional financial assistance programs and, in cooperation with other university offices, participates in the awarding of scholarships to deserving students. For information, visit: www.financialaid.umd.edu.

Journalism

The Philip Merrill College of Journalism offers the B.A., M.A., M. J. and Ph.D degrees. For more information and undergraduate degree requirements see the Philip Merrill College of Journalism entry under "Colleges and Schools."

Kinesiology (KNES)

School of Public Health
2351 School of Public Health Building, 301-405-2450
www.hhp.umd.edu/KNES
ihruzd@umd.edu
Chair: J. Clark (Prof & Chair)
Director: C. Farmer
Professors: D. Andrews, J. Hagberg, B. Hatfield, B. Hurley, S. Iso-Ahola, J. Jeka
Associate Professors: J. Contreras-Vidal, S. McDaniel, M. Rogers
Assistant Professors: E. Chen, R. Gentili (Visiting), A. Haufler, T. Kiemel, M. Oliveira, S. Roth, J. Schultz, J. Shim, E. Spangenburg, D. Thomas
Instructors: E. Brown, M. Scott
Lecturers: J. Bush, D. Klotz, S. Kogut, A. Palla-Kane, D. Vacante, J. Zimmerman
Professors Emeriti: D. Clarke, C. Dotson, B. Franks, J. Hult, D. Kelley, S. Phillips (Assoc Prof Emerita), D. Steel, J. Wrenn (Assoc Prof Emeritus)

The Major

The Department of Kinesiology offers two undergraduate degree programs. Students may choose to major in Physical Education or in Kinesiological Sciences. Brief descriptions of each program follow. Students should obtain a current Student Handbook for the degree program of interest (available on the web at www.hhp.umd.edu/KNES). Both programs require a grade of C or better in all required course-work. Departmental contacts are: Dr. Ana Palla-Kane for Physical Education (301-405-2502, anapalla@umd.edu) or Dr. Marvin Scott (301-405-2480, mwscott@umd.edu) for Kinesiology.

Program Objectives

The overall mission of the Department of Kinesiology is to improve the health and well being of all people through an interdisciplinary understanding of physical activity in its many forms (e.g., exercise, sport, movement activities of daily living). The Department of Kinesiology is committed to providing students with an excellent education in Kinesiology; generating empirical evidence about physical activity; and providing services to the state, nation, and world by furthering and sharing our knowledge and expertise about physical activity.

Requirements for the Major

Physical Education Major

The Physical Education degree program is designed to lead to Pre-K-12 teacher certification in the State of Maryland. Maryland teaching certificates are reciprocal with most other states. While this program is designed to provide professional preparation for individuals in public school settings, it also provides excellent preparation for those wishing to pursue other professional opportunities in sport, exercise, or physical activity. Also, due to the scientific foundation of the degree program, an appropriate background is established for future graduate work for those who desire to continue their studies in any area involving human movement and sport. Many courses require prerequisites and proper sequencing is very important. Not all courses are offered every semester. All interested students are urged to schedule an advising appointment with the program coordinator before declaring this major. Students should consult the department for updated information.

		Credits
	KNES CORE Courses	
KNES287	Sport and American Society	3
KNES293	History of Sport in America	3
KNES300	Biomechanics of Human Motion - *Prerequisite BSCI201 and MATH112, 115 or placement in MATH140. Applicable to all students entering Fall 2008 and later (unless a Fundamental Math course was completed prior to Spring 2009 with a grade of C or better)*	4
KNES350	Psychology of Sport	3
KNES360	Exercise Physiology	3
KNES370	Motor Development	3
KNES385	Motor Control and Learning	3
	Education Degree Requirements	
CORE	University CORE requirements	24
KNES	KNES CORE (listed above)	22
	Pedagogical Sequence	*25*
KNES182	Rhythmic Activities	2

KNES183	Movement Content for Elementary School Children	3
KNES190	Personal Fitness and Wellness	2
KNES245	Methods of Teaching Physical Education	3
KNES290	Teaching Physical Activity & Fitness Concepts	3
KNES291	Teaching for Sequential Skill Development	3
KNES292	Teaching Game Concepts and Tactics	3
KNES371	Elementary School Physical Education: A Movement Approach	3
KNES491	The Curriculum in Physical Education	3
	Supporting Courses	*21*
BSCI105	Principles of Biology I	4
BSCI201	Human Anatomy and Physiology I	4
BSCI202	Human Anatomy and Physiology II	4
KNES282	Basic Care and Prevention of Athletic Injuries	3
KNES333	Physical Activity for Students with Special Needs	3
KNES480	Measurement in Physical Education	3
	College of Education Requirements	*12*
EDPL301	Foundations of Education	3
EDHD413	Adolescent Development	3
EDHD426	Cognition and Motivation in Reading: Reading in Content Areas	3
EDCI463	Reading in the Secondary School	3
	Student Teaching	*15*
KNES390	Practicum/Internship in Teaching Physical Education	3
EDCI485	Student Teaching in Elementary School: Physical Education	4-8
EDCI495	Student Teaching in Secondary School: Physical Education	2-8
ELECT	Elective	1

Minimum total semester hours for this program is 120 credits. Admission to the College of Education is required upon completion of 45 applicable credits. Students must pass the Praxis I exam, have a GPA of 2.5 (with at least 12-15 hours at University of Maryland), be in compliance with the "College of Education Technical Standards/Foundational Competencies", and participate in professional opportunities beyond the program requirements. It is recommended that candidates meet with the physical education advisor to establish a plan for meeting required extracurricular activities. Additional information is available from the College of Education.

Kinesiological Sciences Major

This program offers students the opportunity to study the interdisciplinary body of knowledge related to human physical activity and sport, and to pursue specific specializations so that each individual can prepare for a particular career goal within the broad discipline. There is no intent to orient all students toward a particular specialized interest, orientation or career. However, many current students are pursuing careers in medically-related fields (i.e., physical therapy, physician, chiropractory), in the fitness industry (i.e., corporate fitness, personal training, health fitness director) as well as in the sport industry (sport management, sport marketing, events management, equipment sales, athletic director). The program provides a hierarchical approach to the study of human movement. First, a broad core of knowledge is recognized as being a necessary foundation for advanced and more specific courses. Secondly, at the 'Options' level, students select from approved upper level KNES courses which they believe will provide the knowledge to pursue whatever future goal they set for themselves. To further strengthen specific areas of interest, students should select electives carefully. The program culminates with a senior seminar class in which students write a substantial paper and discuss the implications of research.

		Credits
	Required Courses	
	KNES CORE	*22*
KNES287	Sport and American Society	3
KNES293	History of Sport in America	3
KNES300	Biomechanics of Human Motion - *Prerequisite BSCI201 and MATH112, 115 or placement in MATH140. Applicable to all students entering Fall 2008 and later (unless a Fundamental Math course was completed prior to Spring 2009 with a grade of C or better)* -	4

KNES350	Psychology of Sport	3
KNES360	Exercise Physiology	3
KNES370	Motor Development	3
KNES385	Motor Control and Learning	3
CORE	University CORE requirements	27
	Option Courses	12
	See departmental Bulletin Board, Handbook, or web page	
	NOTE: all have KNES prerequisites	
	Supporting Courses	*18*
BSCI105	Principles of Biology I	4
BSCI201	Human Anatomy and Physiology I	4
BSCI202	Human Anatomy and Physiology II	4
MATH/STAT	one statistics course	3
KNES497	Independent Studies Seminar	3
P.ACTV	*Physical Activities Courses*	*8*
	See Handbook or web page	
ELECT	Electives (approximately)	33

* Minimum total semester hours for program is 120 credits, including the general education (CORE) program.

Requirements for the Minor

Sport Commerce and Culture

The minor in Sport Commerce and Culture provides students with a unique opportunity to study the structure and experience of contemporary sport culture from an interdisciplinary perspective rooted in theories and methods largely - but not exclusively - drawn from anthropology, cultural studies, economics, gender studies, history, media and communication studies, psychology, race and ethnic studies, sociology, and urban studies. The minor requires 18 credits:

		Credits
	Required courses	**6**
KNES287	Sport in American Society	3
KNES293	History of Sport in America	3
	N.B. These courses fulfill CORE SB/D1 and SH2 requirements	
	Elective Courses	**12**
	Any four of the following 3-credit courses	
KNES240	Exploring Cultural Diversity Through Movement	3
KNES350	The Psychology of Sports	3
KNES351	Contemporary Issues in American Sport	3
KNES355	Sport Management	3
KNES357	Sport and Culture in the Global Marketplace	3
KNES451	Children and Sport: A Psychosocial Perspective	3
KNES483	Sport Marketing and Media	3
KNES484	Sporting Hollywood	3
KNES485	Sport and Globalization	3
KNES486	Politics and Economics of Organized Contemporary Sport	3
	Please Note:	
	1) Not all elective courses are offered every year.	
	2) Temporary courses may be added to this list dependent on the Minor advisor's approval.	

3) Relevant courses from other departments may be added to the list dependent on the Minor advisor's approval.

Advising

Advising is mandatory for Physical Education majors and strongly recommended (but not mandatory) for Kinesiological Sciences majors. Students in both majors are encouraged to join the departmental listserv (group electronic information) for weekly departmental and campus updates and internship/job information. Instructions for joining the listserv are available at the Main Office (HHP 2351). Students should also periodically check the Bulletin Boards near HHP 2335 for updated information. Kinesiological Sciences majors with greater than 80 credits should meet with an advisor to review and sign the senior audit.

Advisors are not assigned, although certain advisors handle issues related to policy exceptions, academic difficulties, change of major, athletes, and other special cases. Advising appointments are made through the Main Office (301-405-2450). Drop-in hours are available during non-peak registration times. Advisors can assist with registration procedures, program updates, University resources, career guidance, and related issues. Students are strongly encouraged to follow their approved academic plan to allow proper and timely progression through the degree program and to see an academic advisor when they must make changes to their plan.

Undergraduate Research Experiences

Undergraduate research experiences are encouraged. Research internships are available for 1-3 credits and generally done at the junior or senior level following the completion of most Kinesiology core courses. Contact the Kinesiology undergraduate office for additional information (301 405-2450).

Fieldwork Opportunities

Fieldwork opportunities are available and encouraged in a variety of areas including physical therapy, occupational therapy, fitness, sport management and many others. Contact the Kinesiology undergraduate office (301 405-2450) to obtain additional information.

Internships

One-three credit internships are encouraged. Contact the Kinesiology undergraduate office (301-405-2450) for additional information.

Honors Program

The departmental Honors Program complements and extends the University Honors Program, although the admission to the University program is not required to be admitted to the departmental program. The departmental Honors Program provides junior and senior students with opportunities to engage in extended study, research and discussions with faculty. The program requires 18 credits of Honors versions of courses and a thesis, which will be defended before a faculty committee. Applicants must have a 3.5 overall GPA in a minimum of 45 credits and a 3.5 GPA in at least 9 credits from the Kinesiology Core. The faculty Honors Committee also considers leadership, motivation and maturity in the admission decision. Qualified students typically apply in the spring semester of the sophomore year. To remain in the program after admitted, students must maintain a 3.5 GPA. Students may graduate with high honors by completing a thesis rated as outstanding and earning a cumulative GPA of 3.7 or higher. Inquires about the program should be directed to Dr. Stephen Roth, Honors Program Coordinator, at 301-405-2504 or sroth1@umd.edu.

Korean

See "Other Language Programs" in the School of Languages, Literatures and Cultures entry for more information.

Landscape Architecture (LARC)

College of Agriculture and Natural Resources
2139 Plant Sciences Building, 301-405-4359
www.larc.umd.edu/
mdosh@umd.edu
Chair: W. Kenworthy (Professor and Acting Chair)
Director: J.B. Sullivan
Associate Professors: S. Chang, D. Myers, J.B. Sullivan
Assistant Professors: S. Duempelmann, R. Fabiani Giannetto
Instructors: D. Nola
Lecturers: A. Anderson, A. Ison, B. Kane, J. Leonard

The Major

The Landscape Architecture curriculum is a four-year professional program. The program is a site-based design discipline that also deals with regional and larger-scale environmental issues. The curriculum, a studio-based design program, integrates natural and social factor analysis into the design process. Digital design studios allow the integration of computer-aided design with fundamental design and drawing skills.

The Department of Plant Science and Landscape Architecture offers two additional undergraduate curricula that students may choose: the Bachelor of Science (B.S.) in Plant Sciences or in Agricultural Sciences and Technology. Information on these majors may be found elsewhere in the catalog.

Courses offered by this department may be found under the following acronyms: PLSC and LARC.

Program Learning Outcomes

- Develop knowledge-based skills in the required areas of study.
- Apply knowledge-based skills to work, collaborate and solve problems, and articulate conclusions.
- Articulate knowledge of content area and demonstrate competence in professional practice through effective communication skills appropriately tailored to specific audiences.

Admission to the Major

Landscape Architecture is a limited-enrollment program (LEP). See Chapter 1 of the Undergraduate Catalog for general limited-enrollment program admission policies.

Freshman Admission: The program's goal is to have the greater proportion of program majors admitted as freshmen. Most entering freshmen will gain admission to the landscape architecture program directly from high school, as space permits. Early application is encouraged to ensure the best possible chance for admission.

Transfer Admission: Admission of transfer students is limited by space considerations: Students presenting an acceptable graphic portfolio, evaluated by the landscape architecture faculty, may be exempted from one or both of the first year studios. Landscape architecture faculty will evaluate all other LARC-equivalent courses transferred from another institution.

The Academic Review: All students will be subjected to an Academic Review after they have completed the first three design studio courses (or their equivalent) in the Landscape Architecture curriculum. To meet the provisions of the review, students must complete: (1) MATH 112 or MATH 115 with a minimum grade of C, (2) LARC 120 and 160 with a minimum grade of B, and LARC 140 and 141 with a minimum grade of C, (3) attain a successful review of a portfolio (a minimum of 80 points out of a possible 100) by the landscape architecture faculty to assess graphic and design skills, and (4) attain an overall GPA of at least 2.40. Students who do not meet these requirements will not be allowed to continue in the landscape architecture LEP and will be required to accept another major.

Other Policies Which Determine a Student's Retention in the Landscape Architecture Program:

- A student can only repeat one of the five Academic Review Course Requirements (LARC 120, 140, 141, 160 and MATH 112 or MATH 115). That particular course can only be repeated once.
- A grade of W (Withdrawn) in a course is counted as an attempt.
- A student who does not meet the Academic Review requirements will be dismissed from the Program.
- A student who is dismissed from the Program will not be readmitted to the Landscape Architecture LEP.

Appeals: Students who are unsuccessful in gaining admission to the Landscape Architecture LEP and believe they have extenuating or special circumstances which should be considered, may appeal in writing to the Office of Undergraduate Admissions. The student will be notified in writing of the appeal decision. Students in the Landscape Architecture LEP who do not pass the Academic Review, but believe they have special circumstances that should be considered, should appeal directly to the Coordinator of the Landscape Architecture program.

BLA Degree Requirements. The courses and credit hours that define the curriculum leading to the degree of Bachelor of Landscape Architecture (BLA) are described in the next section. The curriculum includes required courses for the major as well as additional CORE program requirements and electives. Following the successful Academic Review and acceptance into the LARC Program, students must have an overall average of a C (2.0) to be eligible for the BLA degree. Students must also have grades of C or better in all required courses with the LARC designation.

Requirements for the Major

		Credits
ENGL 393	Technical Writing	3
ENST 200	Fundamentals of Soil Science	4
ENST 444	Remote Sensing of Agriculture and Natural Resources, **OR**	
GEOG 340	Geomorphology, **OR**	3
GEOG 372	Remote Sensing	
LARC 120	Digital Fundamentals	2
LARC 140	Graphic Fundamentals Studio	4
LARC 141	Design Fundamentals Studio	4
LARC 160	Introduction to Landscape Architecture	3
LARC 221	Digital Design Tools	3
LARC 240	Graphic Communication and Design Studio	4
LARC 263	History of Landscape Architecture	3
LARC 265	Site Analysis and Ecological Principles	3
LARC 320	Principles of Site Engineering	3
LARC 321	Landscape Structures & Materials	3
LARC 340	Site Planning and Design Studio	5
LARC 341	Regional Design Studio	5
LARC 389	Internship in Landscape Architecture	3
LARC 420	Professional Practice	3
LARC 440	Urban Design Studio	5
LARC 450	Environmental Resources, **OR**	3
LARC 451	Sustainable Communities	
LARC 470	Landscape Architecture Seminar	3
LARC 471	Capstone Studio: Community Design	5
MATH 112	College Algebra with Applications and Trigonometry, **OR**	3
MATH 115	Pre-calculus	
PLSC 100	Introduction to Horticulture	4
PLSC 253	Woody Plants for Mid-Atlantic Landscapes I	3
PLSC 254	Woody Plants for Mid-Atlantic Landscapes II	3

Total Major Requirements	87
Additional CORE Program requirements	24
Electives	9
Total	**120**

Advising

The Department has mandatory faculty advising for each of its major and minor programs. Students are required to meet with their faculty advisor at least twice a year. See the Director of the Landscape Architecture Program in 2139 Plant Sciences Building (301-405-4359) for additional information.

Internships

Internships are available at nearby federal, state and county agencies as well as in private landscape architecture practices.

Student Societies and Professional Organizations

The Student Chapter of the American Society of Landscape Architects (ASLA) provides students with opportunities to get involved with on-campus activities. The club is chartered by ASLA.

Scholarships and Financial Assistance

Several scholarships and awards are available to Landscape Architecture students. Contact the Associate Dean's office at 301-405-2078 for additional information. The Department also maintains a listing of scholarships. Contact Kathy Hunt in 2102 Plant Sciences, 301-405-4355.

The Office of Student Financial Aid (OSFA) administers all types of federal, state and institutional financial assistance programs and, in cooperation with other university offices, participates in the awarding of scholarships to deserving students. For information, visit: www.financialaid.umd.edu

Languages, Literatures, and Cultures, School of (SLLC)

College of Arts and Humanities
1105 Jiménez Hall, 301-405-4025
www.languages.umd.edu
Director: Carol Mossman
Associate Director for Academic Affairs: Gabriele Strauch
Acting Associate Director for Academic Affairs: Lauretta Clough
Associate Director for Administrative Affairs: Claire Goebeler

Academic Programs

The School of Languages, Literatures, and Cultures is the primary academic unit devoted to instruction and research in the world's languages, literatures, and cultures. It consists of the Departments of East Asian Languages, Literatures and Cultures; French and Italian; Germanic Studies; Middle Eastern Studies; Russian; Spanish and Portuguese; and the Second Language Acquisition program. It offers undergraduate majors in Arabic Studies, Chinese, French Language and Literature, Germanic Studies, Italian Studies, Japanese, Persian Studies, Russian Language and Literature, and Spanish Language, Literatures, and Cultures. Minors can be earned in Arabic, Chinese Language, Chinese Studies, French Studies, Germanic Language and Literatures, Italian Language and Culture, Japanese, Korean Studies, Persian Studies, Portuguese Language, Literatures, and Cultures, Russian Studies, Spanish Language and Cultures, and Spanish Language, Business, and Cultures. Language and culture instruction through the advanced level is available in Hebrew as well. The School offers study abroad programs in many countries, both short and long-term. Its Language House, a residential immersion facility for approximately 100 students, is one of the most successful living-learning programs on campus, including immersion in Arabic, French, German, Hebrew, Italian, Japanese, Persian, Russian, and Spanish. Its FOLA program offers individualized instruction in less commonly taught foreign languages. Recent language offerings have included: Armenian, Dutch, Hindi, Hungarian, Polish, Swahili, Tagalog, Turkish, Urdu and Vietnamese.

East Asian Languages, Literatures and Cultures (EALL)
2106 Jimenez Hall, 301-405-4239
www.chinese.umd.edu
www.japanese.umd.edu
www.korean.umd.edu

Professor and Chair: Ramsey
Associate Professors: Liu, Yotsukura, Zhou
Assistant Professors: Chao, Mason
Lecturers: Miura, Yaginuma

French and Italian (FRIT)
3106 Jimenez Hall, 301-405-4024
www.french.umd.edu
www.italian.umd.edu

Professor and Chair: Brami
Professors: Mossman, Verdaguer
Associate Professors: Campangne, Eades, Falvo, Frisch, Letzter, Scullen
Assistant Professors: Benharrech, Carlorosi
Lecturer: Amodeo
Emeriti: Fink, Hage, Meijer, Russell, Tarica, Therrien

Germanic Studies (GERM)
3215 Jimenez Hall, 301-405-4091
www.german.umd.edu

Professor and Chair: Beicken+
Professors: Frederiksen+, Oster
Associate Professors: Moyer, Strauch
Assistant Professor: Koser
Emeriti: Best, Herin, Jones, Pfister,Walker
+Distinguished Scholar Teacher

Middle Eastern Studies (MEST)
3215 Jimenez Hall
www.arabic.umd.edu
www.hebrew.umd.edu
www.persian.umd.edu

Professor and Chair: Karimi
Professor: Elgibali
Associate Professors: Abasi, Anishchenkova, Zalcim
Lecturer: Levy

Russian (RUSS)
3215 Jimenez Hall

www.russian.umd.edu
Associate Professors: Hitchcock, Lekic, Martin, Papazian
Assistant Professor: Landa

Spanish and Portuguese (SPAP)
2215 Jimenez Hall, 301-405-6441
www.portuguese.umd.edu
www.spanish.umd.edu

Professor and Chair: Quintero Herencia
Professors: Aguilar-Mora, Cypess, Harrison, Sosnowski
Associate Professors: Demaría, Igel, Lacorte, Lavine, Merediz, Naharro-Calderón, Rodriguez, Sánchez de Pinillos
Assistant Professor: Penrose
Lecturers: Krausen
Emeriti: Nemes, Pacheco
++Distinguished University Professor

In all SLLC programs, language acquisition courses must be taken sequentially. Once credit has been received in a higher-level language acquisition course, a lower-level course may not be taken for credit.

Language Majors

The Arabic Studies Major

www.arabic.umd.edu

The Major
This 42-credit major provides students with a solid background in linguistic, literary, and cultural aspects of the study of Arabic, inclusive of the cultures of North Africa, Egypt, the Arabic-speaking countries of Asia, and the peoples of the diaspora. The B.A. in Arabic Studies prepares students for a range of professional opportunities, including careers in government, education, business, and international development and communication. Students work toward competence in speaking, reading, writing, and listening; they will study the culture of Arabic-speaking peoples in their diverse perspectives, practices, and products; they will become conversant with the contemporary political and daily life of Arabic-speaking peoples, with cultural comparison implicit throughout their four years. It is expected that many undergraduates will choose to double major or do a double degree in Arabic and another subject, including arts and humanities majors, business, computer science, and journalism.

Requirements for the Major
All students planning to pursue the major in Arabic Studies should contact the undergraduate advisor, who will be responsible for placement, oversight, and record keeping. A grade of C (2.0) or better is required in all courses.

Prerequisites (18 credits)
Students must take the prerequisite courses or satisfy these requirements by placement:*

ARAB104	Elementary Modern Standard Arabic I-II (6 credits)
ARAB105	Elementary Modern Standard Arabic III-IV (6 credits)
ARAB106	Elementary Egyptian Colloquial Arabic I
ARAB107	Elementary Egyptian Colloquial Arabic II

*Modern Standard Arabic is the formal variety of Arabic used throughout the Arab world, particularly for reading and writing. Egyptian Colloquial Arabic is one of the major spoken varieties in the Middle East. Once credits have been received for a higher-level language focus course, a lower-level course in the same strand (written or spoken) may not be taken for credit. (ARAB204 may not be taken after ARAB205, for example. ARAB107 may not be taken after ARAB206, etc.)

Required Courses for the Major
All courses are 3 credits unless noted otherwise

Core sequence: 24 credits

ARAB204	Intermediate Modern Standard Arabic I (6 credits)
ARAB205	Intermediate Modern Standard Arabic II (6 credits; prereq ARAB204)
ARAB304	Advanced Modern Standard Arabic I (prereq ARAB205)
ARAB305	Advanced Modern Standard Arabic II (prereq ARAB304)
ARAB206	Intermediate Egyptian Colloquial Arabic III (prereq ARAB107)
ARAB207	Intermediate Egyptian Colloquial Arabic IV (prereq ARAB206)

Electives: a minimum of 18 credits
A. Required Upper-level electives in Arabic (a minimum of 9 credits)

ARAB311	The Arab World Today (pre-coreq ARAB304)
ARAB312	Islamic Culture (pre-coreq ARAB304)
ARAB321	Arab Media (pre-coreq ARAB304)
ARAB322	Commercial Arabic (pre-coreq ARAB304)
ARAB401	Readings in Arabic Literature (prereq ARAB305)
ARAB402	Arabic Translation (prereq ARAB305)
ARAB411	U.S. - Arab Relations (prereq ARAB305)
ARAB412	Modern Arabic Literature: A Survey (prereq ARAB305)
ARAB499	Special Topics in Arabic Studies

- Other ARAB courses may be included on written approval of UG advisor.
- All prerequisites imply "or equivalent knowledge." In cases where a student has equivalent knowledge, required language-focus credits are replaced in consultation with, and with the written approval of, the UG advisor.

B. Optional Electives in English: a maximum of 9 credits (no prereqs)

ARAB 251	Arabic Cinema
ARAB 252	Arabic Literature in Translation
ARAB 351	Arab Culture and Civilization
ARAB 499	Special Topics in Arabic Studies

Courses in Middle Eastern Studies taught in English in other departments can be substituted with the approval of the Undergraduate advisor.

Study Abroad
Students majoring in Arabic Studies are encouraged to spend a summer or a semester abroad. Credits earned toward the major during study abroad must be approved by the department prior to departure. A maximum of 15 non-UM credits may be applied to the major.

The Chinese Major
www.chinese.umd.edu

The Chinese major provides the training and cultural background needed for entering East Asia-related careers in such fields as higher education, the arts, business, government, international relations, agriculture, or the media. Students may also consider a double major in Chinese and another discipline, such as business, government and politics, economics, or journalism.Chinese students have the option of applying to live in St. Mary's Hall (Language House) and participating in a study abroad program.

As of Fall, 2007, the Chinese major requires 39 credits: 18 of language, 3 of CHIN207, and 18 of non-language electives, as described below.No grade lower than C (2.0) may be used toward the major.

I. Language requirements: 18 credits of Chinese language at 200-level or above. Student placing into the program at higher levels should reach at least the level of CHIN302 or CHIN306 but may substitute non-language courses on China-related subjects for some of these 18 credits. (The final decision on what substitute courses may be used for the major rests with the Chinese Program and the Chinese Advisor.) Language courses accepted for the major include:

- CHIN201/202 Intermediate Spoken Chinese I and Intermediate Written Chinese I (must be taken together and passed together)
- CHIN203/204 Intermediate Spoken Chinese II and Intermediate Written Chinese II (must be taken together and passed together)
- CHIN301 Advanced Chinese I
- CHIN302 Advanced Chinese II
- CHIN305 Life in China through TV Plays I
- CHIN306 Life in China through TV Plays II
- CHIN401 Readings in Modern Chinese I
- CHIN402 Readings in Modern Chinese II
- CHIN418A Special Topics in Contemporary Chinese Fiction and Film: Sex and the City: Literary and Filmic Representations of Women (taught in Chinese)
- CHIN418B Special Topics in Contemporary Chinese Fiction and Film: The Representation of Youth (taught in Chinese)
- CHIN441 Traditional Chinese Fiction (taught in Chinese)
- CHIN442 Modern Chinese Fiction (taught in Chinese)

II. Linguistic Resources for Students of Chinese: 3 credits

CHIN207 (3 credits). This course is intended primarily for students at second year level. The goal is to guide students into becoming more independent and effective learners of the language.

If the student is already at the third year level or above, a 3-credit substitute can be arranged with the approval of the advisor. See "Non-language Requirements", below, for a list of some acceptable courses

III. Literature. 3 credits of Chinese literature at 300 level or above. Courses accepted include:

- CHIN314 Chinese Fiction and Drama in Translation
- CHIN315 Modern Chinese Literature in Translation
- CHIN316 Traditional Chinese Values
- CHIN418A Special Topics in Contemporary Chinese Fiction and Film: Sex and the City: Literary and Filmic Representations of Women
- CHIN418B 3 Special Topics in Contemporary Chinese Fiction and Film: The Representation of Youth
- CHIN442 Modern Chinese Fiction

IV. Linguistics. 3 credits of Chinese linguistics at 300 level or above. Courses accepted include:

- CHIN421 Sounds and Transcriptions of Mandarin Chinese
- CHIN422 Advanced Chinese Grammar
- CHIN423 Chinese Historical Phonology
- CHIN424 Linguistics of the Chinese Writing System
- CHIN428 Selected Topics in Chinese Linguistics
- EALL300 The Languages of East Asia

V. History/Civilization. 6 credits of Chinese history/civilization offered by other departments. Courses accepted include, but are not limited to:

- EALL310 Asian Culture and the Sinosphere
- HIST284 East Asian Civilization I
- HIST285 East Asian Civilization II
- HIST480 History of Traditional China
- HIST481 A History of Modern China

"Special Topics" and "Colloquium" courses (those with variable numbers, ending in 8 or 9 and followed by a letter) may be acceptable but only depending on the actual title and content of the course at the time it is offered. The final say on whether such courses are acceptable for a particular student's major is in the hands of the Chinese Program and the Chinese Advisor.

Electives. 6 credits of electives at 300 level or above, subject to the advisor's approval. In addition to all the specific courses listed "Non-language Requirements", above, language courses and independent study may also be used toward this requirement.

French Language, Literature and Culture
www.french.umd.edu

The undergraduate major in French is centered on the study of the French language and the literatures and cultures of French peoples. Students who complete the requirements for the major can expect to be able to speak, read, write, and understand French at a level that would allow them to communicate with native speakers, to recognize and interpret the diverse cultural perspectives and products of the French-speaking world, and to be culturally sensitive members of society. Students are encouraged to study abroad, and University programs in Nice and Montpellier offer a choice between long and short-term stays.

Students must take language acquisition courses sequentially, i.e., 103, 203, 204, 250, etc. Once credit has been received in a higher-level language acquisition or grammar course, a lower-level course may not be taken for credit.

Required courses (36 credits):

FREN204	French Grammar and Composition	3
FREN250	Introduction to French Literature	3

FREN301	Composition and Style	3
FREN401	Writing with Style	3
	One from	
FREN302	Translation: French to English	3
FREN303	Translation: English to French	3
	One from:	
FREN311	Advanced Oral Expression	3
FREN312	France Today	3
	Also required:	
FREN351	From Romanticism to the Age of Modernism and Beyond	3
FREN352	From the Age of Epic and Romance to the Enlightenment	3
FREN4xx	four additional 400-level courses of which only one may be in English	12

Germanic Studies
www.german.umd.edu

The BA in Germanic Studies is centered on the study of the German language and the literatures and cultures of Germanic peoples. Students who complete the requirements for the major can expect to be able to speak, read, write, and understand German at a level that would allow them to communicate with native speakers, to recognize and interpret the diverse cultural perspectives and products of the German-speaking world, and to be culturally sensitive members of society.

Note: All prerequisites imply "or equivalent knowledge."

Prerequisite: 8 credits
GERM103 Intensive Elementary German 4 credits
GERM203 Intensive Intermediate German 4 credits

Course Requirements: 36 credits
All choices, transfer equivalencies, and substitutions to be approved in advance by advisor.

A. Core Language Sequence: 9 credits

GERM204 German Grammar Review (prereq GERM203/HS level 4 German)
GERM301 Conversation/Composition I: Germany and its People (prereq GERM204)
GERM302 Conversation/Composition II: Current Topics in German Society (prereq GERM301)

B. Area Requirements: 27 credits
Nine courses, to include a minimum of 2 upper-level courses in each of three areas: language, literature, and culture.

Language Courses: 6 credits upper level minimum
GERM401 Advanced Conversation: Germany within Europe (prereq GERM302)
GERM403 Advanced Composition: German Culture & Social Issues (prereq GERM302)
GERM405 Stylistics (prereq GERM302)
GERM315 Practicum in Translation I (prereq GERM204)
GERM316 Practicum in Translation II (prereq GERM315)
GERM411 German for International Business I (prereq GERM302)
GERM412 German for International Business II (prereq GERM411)
GERM319 Selected Topics in Germanic Language Studies (prereq GERM203)
GERM419 Selected Topics in German Language Study (prereq GERM302)
GERM479 Selected Topics in Germanic Philology

Literature Courses: 6 credits upper level minimum
GERM320 Survey of German Studies (prereq GERM301)
GERM321 Highlights of German Literature I (prereq GERM301)
GERM322 Highlights of German Literature II (prereq GERM301)
GERM421 Literature of the Middle Ages (prereq: one course from the GERM320 series)
GERM422 From the Reformation Through the Baroque (prereq: one course from the GERM320 series)
GERM424 Classicism (prereq: one course from the GERM320 series)
GERM431 Romanticism and Biedermeier (prereq: one course from the GERM320 series)
GERM432 From Enlightenment to Storm and Stress (perreq: one course from the GERM320 series)
GERM433 Naturalism and its Countercurrents (prereq: one course from the GERM320 series)
GERM434 Expressionism to 1945 (prereq: one course from the GERM320 series)
GERM435 Expressionism to 1945 (prereq: one course from the GERM320 series)
GERM439 Selected Topics in German Literature (prereq: one course from the GERM320 series)

Culture Courses: 6 credits upper level minimum
Courses marked with * are taught in English; no prerequisites unless specified
*GERM280 German-American Cultural Contrasts
*GERM281 Women in German Literature & Society
*GERM282 Germanic Mythology
*GERM283 Viking Culture and Civilization
*GERM284 German Chivalric Culture
*GERM285 German Film and Literature
*GERM287 Ancient Celtic Culture and Civilization
GERM289 Selected Topics in the Cultures of the Germanic Speaking Countries
GERM299 Special Topics in Germanic Studies
*GERM368 Scandinavian Civilization
*GERM381 German Civilization I
*GERM382 German Civilization II
*GERM389 Topics in Germanic Culture
GERM399 Selected Topics in Germanic Studies (dept permission)
GERM449 Selected Topics in Germanic Studies (dept permission)

*GERM463 The IcelandicFamily Saga
*GERM475 Old Norse
GERM489 Selected Topics in Area Studies (prereq GERM302)

Language of Instruction
No more than 9 credits of the 36 total required may be satisfied by courses taught in English. With the approval of the Germanic Studies advisor, up to 6 credits of these courses may be taken outside the department.

Study Abroad and Internships
Study Abroad is highly recommended. With the approval of the major advisor, courses taken through Study Abroad may be applied to the total of 36 credits, replacing courses on list above. Specific credits and equivalencies are determined by advisor on receipt of transcripts. Students are encouraged to save samples of work completed abroad to present to advisor upon their return.

Internships (GERM 386) are also encouraged (no more than 3 credits may be applied to the major). Germ 386 may not replace the required 6 credits of upper-level courses in any of the three categories.

Italian Studies
www.italian.umd.edu

The Italian major is currently under review. Please contact Dr. Falvo (gfalvo@umd.edu) for details.

The Japanese Major
www.japanese.umd.edu

The Japanese major provides the training and cultural background needed for entering East Asia-related careers in such fields as higher education, the arts, business, government, international relations, agriculture, or the media. Students may also consider a double major in Japanese and another discipline, such as business, international relations, economics, or journalism. After completing the prerequisite of one year of language (12 credits): JAPN 101 (Elementary Japanese I; six hours per week, fall); and JAPN 102 (Elementary Japanese II; six hours per week, spring), students must complete 42 credits for the major course requirements (24 language, six civilization/history, 12 elective).

Students must take language-acquisition courses sequentially. Once credit has been received in a higher-level language acquisition or grammar course, a lower-level course may not be taken for credit.

	Requirements	**Credits**
	Language:	
JAPN201	Intermediate Japanese I	6
JAPN202	Intermediate Japanese II	6
JAPN301	Advanced Japanese I	6
JAPN302	Advanced Japanese II	6
	Civilization/History:	
	Option I:	
HIST284	East Asian Civilization I	3
HIST483	History of Japan Since 1800	3
	Option II:	
HIST285	East Asian Civilization II	3
HIST482	History of Japan to 1800	3
ELECT	Electives (300-level or above)	12

Note: Electives must be in Japanese language, literature, linguistics, or other East Asian subjects (one must be in the area of Japanese linguistics and one in the area of Japanese literature), and are subject to approval by the student's advisor. Courses that can fulfill the major elective requirement include: JAPN 317, 414, 415, 416, 418, and 498. Courses that fulfill the linguistics requirement for the major include JAPN421, 422, 428, and 438.

The Persian Studies Major
www.persian.umd.edu

The Major

The 36-credit major in Persian Studies (12 courses) will provide students with a solid background in linguistic, literary, and cultural aspects of the study of Persian, inclusive of the cultures of Iran, Afghanistan, Persian-speaking Central Asia, and the Persian diaspora. Students will work toward competence in speaking, reading, writing, and listening; students will study the evolution of Iranian and Persianate cultures in their diverse perspectives, practices, and products. They will become conversant with the contemporary political and daily life of Persian-speaking peoples, with cultural comparison implicit throughout their 4 years.

The B.A. in Persian Studies prepares students for a range of professional opportunities, including careers in government, education, the arts, business, and communication. We expect that many undergraduates will choose to double major or do a double degree in Persian and another subject, including arts and humanities majors, business, computer science, engineering, and journalism.

Requirements for the Major

All students planning to pursue the Major in Persian Studies should contact the undergraduate advisor for Persian, who will be responsible for placement, oversight, and record keeping. A grade of 2.0 or better is required in all courses.

A. Prerequisites - 8 credits.

Note: There are no prerequisites for students with equivalent knowledge.

PERS101	Elementary Persian I	4 credits
PERS102	Elementary Persian II	4 credits

COURSES REQUIRED FOR MAJORS
Note: *in cases where a student has equivalent knowledge, required language-focus credits are replaced in consultation with UG advisor. This may include courses in Arabic for those students who intend to study Persian literature in Persian, as Arabic is integral to the history of Persian literature.*

B. CORE Sequence - 18 credits
Note: All prerequisites imply "or equivalent knowledge."

PERS201	Intermediate Persian I (prereq 102)
PERS211	Intermediate Conversation (co-req 201)
PERS202	Intermediate Persian II (prereq 201/211)
PERS212	Intermediate Reading (co-req 202)
PERS301	Advanced Perisan I (prereq 202/212)
PERS302	Advanced Persian II (prereq 301)

C. Upper Level Electives in Persian - 6 credits

PERS311	Persian Media (pre-coreq 301)
PERS312	Iranian Culture (prereq 301)
PERS401	Persian Composition (prereq 302)
PERS402	Persian Translation (prereq 302)
PERS411	Readings in Modern Iranian History and Culture (prereq 302)
PERS412	Language and Identity (prereq 302)
PERS452	Modern Persian Literature: A Survey (prereq 302)
PERS453	Classical Persian Literature: A Survey (prereq: 302 and 6 credits Arabic)
PERS498	Special Topics in Persian Studies
PERS499	Special Topics in Persian Literature

D. Electives in English - up to 12 credits; no prerequisites

PERS250	Contemporary Iranian Arts
PERS251	Modern Iran
PERS283	Iranian Cinema
PERS353	Iranian Life in Literature and Film
PERS371	Introduction to Persian Literature in Translation
PERS372	The History of Persian
PERS441	Islam in Iran

Courses in Middle Eastern Studies taught in English outside the Department may be substituted on approval of the Undergraduate Advisor.

E. Supporting Area - 9 credits

Students must take 9 upper-level credits in a single area of study outside Persian Studies as a complement to their major. Their plan should be cleared with the Undergraduate advisor upon declaring major. Double majors and minors fulfill this requirement.

The Romance Languages Major
www.romancelanguages.umd.edu

The BA in Romance Languages is undergoing revisions. Please contact Dr. Giuseppe Falvo for information. gfalvo@umd.edu.

The Romance Languages Program is intended for students who wish to specialize in two of the Romance languages: French, Italian, Spanish. Students selecting this major must take a total of 45 credits selected from courses in two of the three components listed below: French, Italian and Spanish. The first four courses listed under each group are required for that particular language component; exceptions or substitutions may be made only with the approval of the student's advisor in consultation with the Romance Languages advisor. 21 credits are taken in each of the two languages, as specified, and three additional credits are taken at the 400-level in either of the languages chosen. Literature or civilization courses may not be taken in translation. Students who wish to apply for Teacher's Certification should consult the College of Education.

Students must take language-acquisition courses sequentially. Once credit has been received in a higher-level language acquisition or grammar course, a lower-level course may not be taken for credit.

Requirements		**Credits**
	French	
FREN204	French Grammar and Composition	3
FREN250	Introduction to French Literature	3
FREN301	Composition and Style	3
FREN351	From Romanticism to the Age of Modernism and Beyond	3

FREN352	From the Age of Epic and Romance to the Enlightenment	3
FREN4xx	two additional literature or civilization courses at the 400 level	6
	Italian	
ITAL204	Review Grammar and Composition	3
ITAL211 or 251	Intermediate Conversation Aspects of Contemporary Italian Literature & Culture	3
ITAL301	Composition and Style	3
ITAL350	Readings in Italian Literature	3
ITAL4xx	three additional literature or civilization courses at the 400 level	9
	Spanish	**21**
SPAN207	Reading and Writing in Spanish	3
SPAN301	Advanced Grammar and Composition I	3
SPAN331, 332 and 333 or SPAN361, 362 and 362	Spanish Culture, Civilization & Literature I, II and III **OR** Latin American Literatures & Cultures I, II and III	9
SPAN4xx	two literature or civilization courses at the 400 level	6
All Majors: FREN/SPAN/ITAL	One additional 3-credit course at the 400 level in either of the two languages	3

The Russian Major
www.russian.umd.edu

The undergraduate major in Russian Language and Literature consists of 40 credits beyond the prerequisite of Elementary Russian (Russian 101-102 or equivalent). Many students pursue a double major or double degree in Russian and another discipline, such as international relations, business, history, economics, journalism, engineering, etc. Russian students have the opportunity to live in St. Mary's Language House, and the majority of majors participate in study abroad. Native or heritage speakers wishing to enroll in Russian courses or major in Russian should consult the Undergraduate Advisor. Students interested in enrolling in a course that appears closed or that has a waitlist are strongly encouraged to contact the faculty member or Undergraduate Advisor for Russian for permission to enroll.

Students must take language-acquisition courses sequentially. Once credit has been received in a higher-level language acquisition or grammar course, a lower-level course may not be taken for credit.

	Requirements	**Credits**
RUSS201	Intermediate Russian I	5
RUSS202	Intermediate Russian II	5
RUSS301	Advanced Russian I	3
RUSS302	Advanced Russian II	3
RUSS3xx	One additional course at the 300-level	3
RUSS401	Advanced Russian Composition	3
RUSS402	Practicum in Written Russian	3
RUSS4xx	One additional course at the 400-level	3
RUSS	Two RUSS electives	6
RUSS300/400	Two upper level RUSS electives*	6
	**must be taught in Russian*	

Notes: One supporting course outside the department (at the 300-level or above) may be counted toward the major with an advisor's prior approval.

Spanish Language, Literatures, and Cultures
www.spanish.umd.edu

The undergraduate major in Spanish Language, Literatures, and Cultures consists of 36 credits of coursework beyond the intermediate prerequisite level, with an additional supporting area (nine credits). All students will take a core of four courses and a three course literature/culture sequence focused on Spain or Latin America; the remaining coursework will come from one of three options: Literature and Culture, Linguistics and Culture, Language and Culture in Professional Contexts.

Prerequisites: 11 credits (or equivalent knowledge)
Note: Students who receive a grade of B+ or above in SPAN203 can proceed directly to SPAN207.

SPAN103 Intensive Elementary Spanish (4 credits)
SPAN203 Intensive Intermediate Spanish (4 credits)
SPAN204 Review of Spanish Grammar (3 credits)

Core sequence: 21 credits (required for all three options)

SPAN207	Reading and Writing	*Prereq: SPAN203 with a grade of B+ or higher or SPAN204 or concurrent SPAN204; or equivalent knowledge*	3
SPAN301	Advanced Grammar & Composition I	*Prereq: SPAN207 or concurrent 207*	3
SPAN302	Advanced Grammar&Composition II	*Prereq: SPAN301*	3
SPAN303	Approaches to Cultural Materials in the Hispanic World	*Prereq: SPAN207*	3
SPAN 331 **and**	Spanish Culture, Civilization and Literature I: Medieval Times	*Prereq: SPAN301 and 303*	9
SPAN332 **and**	Spanish Culture, Civilization and Literature II: Renaissance and Baroque	*Prereq: SPAN301 and 303*	
SPAN333	Spanish Culture, Civilization and Literature III: Modern Times	*Prereq: SPAN301 and 303*	
	- or -		
SPAN 361 **and**	Latin American Literatures and Cultures I: From Pre-Columbian to Colonial	*Prereq: SPAN301 and 303*	9
SPAN362 **and**	Latin American Literatures and Cultures II: From Independence to Nation Formation	*Prereq: SPAN301 and 303*	
SPAN363	Latin American Literatures and Cultures III: From Modernism to Neo-liberalism	*Prereq: SPAN301 and 303*	

Literature and Culture option: 15 credits. This option provides greater expertise in Spanish or Latin American literature and culture (three 400-level courses minimum). Students can choose either 2 commercial Spanish classes OR 2 translation classes OR two additional 400-level literature classes.

SPAN 4xx SPAN4xx	Two 400 level courses in Spanish or Latin American Literature and Culture	*prereq: one from SPAN331, 332, 333, 361, 362, 363 literature sequence above*	6
	- or -		
SPAN316 SPAN318	Practicum in Translation I Translation of Technical Texts	*Prereq: SPAN301and SPAN303 Prereq: SPAN316*	
	- or -		
SPANxx SPANxx SPANxx	Three 400 level courses in Spanish or Latin American Literature and Culture	*Prereq: one from SPAN331, 332, 333,361, 362, 363 literature sequence above*	9

Linguistics and Culture option: 15 credits. This option provides greater expertise in Hispanic linguistics (three upper-level courses). Language and Culture in Professional Contexts This option combines business courses with translation courses to provide a better understanding of professional language contexts.

SPAN310	Spanish Phonetics	*Prereq: SPAN301 and SPAN303*	3
SPAN425 &	Intro Hispanic Linguistics I	*Prereq: SPAN301 and SPAN303*	3
SPAN426	Intro Hispanic Linguistics II	*Prereq: SPAN425*	3
SPANxx **and** SPANxx	Two 400 level courses in Spanish or Latin American Literature and Culture*	*Prereq: one from SPAN331, 332, 333,361, 362, 363 literature sequence above*	6
			15

**The approved program in Spanish and Secondary Education requires 2 upper-level courses in literature/culture along with the three linguistics courses this option provides.

Language and Culture in Professional Contexts: 15 credits. This option combines business courses with translation courses to provide a better understanding of professional language contexts.

SPAN315 &	Commercial Spanish I	*Prereq: SPAN301 and 303*	3
SPAN415	Commercial Spanish II	*Prereq: SPAN315*	3
SPAN316 &	Practicum in Translation I	*Prereq:SPAN301 & 303*	3
SPAN318	Translation of Technical Texts	*Prereq: SPAN316*	3
SPAN422 or	Cross-cultural Communication or one	*Prereq: SPAN315*	3
SPAN4xx	400-level course in Spanish or Latin American Literature and Culture	*Prereq: one from SPAN331, 332, 333, 361, 362, 363 literature sequence*	

Supporting Area: 9 credits in a single area other than Spanish, 6 of which must be at the 300 or 400 level, all with the approval of the Spanish advisor. Students should discuss their choice of supporting area with the Spanish advisor early on in their Spanish studies.

Courses for Heritage Learners: Heritage learners and students from homes where Spanish is spoken or who have had in-depth exposure to Spanish take a series of courses designed to enhance their skills:

SPAN206	Review of Oral and Written Spanish for Native Speakers Educated in the US	*Prereq: Native or near native knowledge of oral Spanish and no formal education in Spanish*
SPAN306	Spanish II for Native Speakers	*Prereq: SPAN306*
SPAN307	Oral Communication Skills for Native Speakers of Spanish	*Prereq:Native or near native knowledge of oral Spanish and no formal education in Spanish*

- Placement in courses for heritage learners is determined by speaking with the Spanish advisor.
- Native speakers and all others with the ability to begin coursework at a higher level should speak with the undergraduate advisor for course substitutions.

Study Abroad
All students majoring in Spanish Language, Literatures, and Cultures are encouraged to study abroad in a Spanish-speaking environment. The program advisor will review all proposed course sequences before the study abroad experience and determine equivalencies after official transcripts have been received by UM (students should expect to present samples of work done abroad to advisor).

Other Language Programs

Hebrew
The Hebrew language program provides an opportunity to acquire knowledge and skills in Hebrew language, culture, and thought. Elementary and intermediate language courses develop communication skills in modern Hebrew. Upper-level language courses emphasize reading comprehension, vocabulary enrichment, and writing skills. More advanced students focus on the analytical study of major classical and modern Hebrew texts.

Students wishing to focus on Hebrew language as a primary subject may do so through a concentration on Hebrew within the Jewish Studies major (see Jewish Studies Program).

Korean
There are two tracks in the Korean language program. The first consists of KORA 101, 102, 202, and 212 and is designed for students with no previous background in, or exposure to, Korean language and culture. The second consists of KORA 211, 212, 311, and 312. It is a heritage sequence for students who were exposed to Korean as children, but who do not have native fluency in the language. See individual course descriptions for placement information. In addition to language skills courses, the department offers courses on the structure and history of the Korean language.

Honors Programs

Honors Programs are available in the School of Languages within the French, German, and Spanish majors. These programs offer qualified students the possibility of working in close contact with a mentor on an original thesis. Interested students should see the departmental Honors Program directors for information as early as possible in their course of studies.

Awards and Recognition

The UG Committee organizes an annual awards ceremony to celebrate those students who have earned SLLC scholarships, academic achievement awards, and honor society membership. The annual SLLC UG Research Forum takes place in conjunction with the awards ceremony.

Arabic

www.arabic.umd.edu

The Minor in Arabic (21 credits) provides instruction in Modern Standard Arabic through the 300-level. Students who satisfy the requirements of the Minor in Arabic can expect to be able to read and write and communicate orally in Modern Standard Arabic at a level that would allow them to interact with native speakers, to engage with authentic texts, and to write connected text of paragraph length. The materials used to further language acquisition are culturally rich resources, and students completing the minor will have become familiar with many of the cultural patterns, social issues, historical events, artistic traditions, and elements of daily life of the people whose cultures are rooted in Arabic. Students interested in pursuing the Minor in Arabic should contact the undergraduate advisor, who will be responsible for oversight and record keeping. Students should declare the Minor in Arabic at least one year prior to graduation.

Prerequisites (12 credits):

		Credits
ARAB 104	Elementary Modern Standard Arabic I-II	6
ARAB 105	Elementary Modern Standard Arabic III-IV	6

No prerequisites are required for students with equivalent knowledge.

Courses required for Minor (21 credits):

All prerequisites imply "or equivalent knowledge."

		Prerequisite	**Credits**
ARAB204	Intermediate Modern Standard Arabic I	ARAB105	6
ARAB205	Intermediate Modern Standard Arabic II	ARAB 204	6
ARAB304	Advanced Modern Standard Arabic	ARAB 205	3
ARAB305	Advanced Modern Standard Arabic	ARAB 304	3
ARABXXX	Additional upper level course taught in Arabic* **Contact the minor advisor for approved courses*		3
			21

Notes:

- Because Modern Standard Arabic is primarily used for written communication, students are encouraged to complement their study of Modern Standard Arabic with courses in Egyptian dialect.
- Once credits have been received for a higher-level language focus course, a lower-level course in the same strand (written or spoken) may not be taken for credit. (For example, ARAB204 may not be taken after ARAB205)
- In cases where a student has equivalent knowledge, required courses are replaced in consultation with minor advisor. All courses applied to the minor must be taught in Arabic.
- Students who begin their study as heritage speakers must seek the advice and written permission of the advisor before choosing the courses they will use to replace any required minor courses.
- A maximum of 6 credits can be applied to the minor from courses taken at other institutions. No more than 6 credits of the minor may be used to satisfy the requirements of a major. No courses in the minor may count toward another minor.
- All courses presented for the minor must be passed with a grade of 2.0 or better.

Minor in Chinese

www.chinese.umd.edu

The 15-credit minor in Chinese language will provide students with a sophisticated understanding of Chinese linguistic knowledge and an upper-level Chinese language skill. Students attempting this minor will need a strong background in Chinese at the level of Chinese 101 and CHIN102/103, which are prerequisites for some of the required courses. This minor will be of particular relevance to students with broad interest in learning Chinese language. Students interested in taking this minor program should contact the Chinese advisor in the Department of Asian and East European Languages and Literatures of the School of Languages, Literatures, and Cultures.

Requirements

A: Four 3-credit language courses from among the following - **12 credits**

CHIN201	Intermediate Spoken Chinese I
CHIN202	Intermediate Written Chinese I
CHIN203	Intermediate Spoken Chinese II
CHIN204	Intermediate Written Chinese II
CHIN205	Intermediate Chinese - Accelerated Track
CHIN207	Linguistic Resources for Students of Chinese
CHIN301	Advanced Chinese I
CHIN302	Advanced Chinese II
CHIN305	Life in China through TV Plays I
CHIN306	Life in China through TV Plays II
CHIN321	Classical Chinese I
CHIN401	Readings in Modern Chinese I
CHIN402	Readings in Modern Chinese II
CHIN403	(number has been changed to CHIN321)
CHIN404	(number has been changed to CHIN408)
CHIN408	Classical Chinese II
CHIN411	Business Chinese I
CHIN412	Business Chinese II
CHIN413	Advanced Conversation and Composition
CHIN415	Readings in Current Newspapers and Periodicals
CHIN431	Translation and Interpretation I
CHIN432	Translation and Interpretation II
CHIN441	Traditional Chinese Fiction
CHIN442	Modern Chinese Fiction

B: One 3-credit linguistics-oriented course from the following - **3 credits**

CHIN421	Sounds and Transcriptions of Mandarin Chinese
CHIN422	Advanced Chinese Grammar
CHIN423	Chinese Historical Phonology
CHIN424	Linguistics of the Chinese Writing System
CHIN428	Selected Topics in Chinese Linguistics

- The course CHIN 331 "Chinese Calligraphy: Theory and Practice" may not be used for the Chinese major or minor.
- Students must receive a "C" or better in all courses used for the minor. 9 of the 15 credits must be upper-level courses.
- No more than six of the fifteen credits toward the minor may be taken at an institution other than UMCP.

Minor in Chinese Studies

www.chinese.umd.edu

The minor in Chinese Studies will provide students with a basic Chinese language skill and a sophisticated understanding of Chinese literature, history, and culture. This minor will be of particular relevance to students with broad interest in learning Chinese culture. Students interested in taking this minor program should contact the Chinese advisor in the Department of Asian and East European Languages and Literatures of the School of Languages, Literatures, and Cultures.

Courses required for this minor are:

A. 6 credits of Chinese language course study at any level, based upon students' level of proficiency. Courses may be selected from among the following:

CHIN101	Intensive Elementary Chinese I
CHIN102	Elementary Spoken Chinese
CHIN103	Elementary Written Chinese
CHIN105	Elementary Chinese - Accelerated Track
CHIN201	Intermediate Spoken Chinese I
CHIN202	Intermediate Written Chinese I

CHIN203	Intermediate Spoken Chinese II
CHIN204	Intermediate Written Chinese II
CHIN205	Intermediate Chinese - Accelerated Track
CHIN207	Linguistic Resources for Students of Chinese
CHIN301	Advanced Chinese I
CHIN302	Advanced Chinese II
CHIN305	Life in China through TV Plays I
CHIN306	Life in China through TV Plays II
CHIN321	Classical Chinese I
CHIN401	Readings in Modern Chinese I
CHIN402	Readings in Modern Chinese II
CHIN403	(number has been changed to CHIN321)
CHIN404	(number has been changed to CHIN408)
CHIN408	Classical Chinese II
CHIN411	Business Chinese I
CHIN412	Business Chinese II
CHIN413	Advanced Conversation and Composition
CHIN415	Readings in Current Newspapers and Periodicals
CHIN431	Translation and Interpretation I
CHIN432	Translation and Interpretation II
CHIN441	Traditional Chinese Fiction
CHIN442	Modern Chinese Fiction

B. 9 Credits - three 3-credit courses from among the following, which must be selected from at least two different departments (other Chinese-specific courses will be added to the list should they be developed):

CHIN313	Chinese Poetry and Prose in Translation
CHIN314	Chinese Fiction and Drama in Translation
CHIN315	Modern Chinese Literature in Translation
CHIN316	Traditional Chinese Values
CHIN331	Chinese Calligraphy: Theory and Practice
CHIN421	Sounds and Transcriptions of Mandarin Chinese
CHIN422	Advanced Chinese Grammar
CHIN423	Chinese Historical Phonology
CHIN424	Linguistics of the Chinese Writing System
CHIN428	Selected Topics in Chinese Linguistics
GVPT359	Topics in Comparative Politics: Comparative Democratization *(if a Chinese topic is the focus of the course)*
HIST419	Special Topics in History *(if a Chinese topic is the focus of the course)*
HIST480	History of Traditional China
HIST481	A History of Modern China

- Students must receive a "C or better in all courses used for the minor
- 9 of the 15 credits must be upper-level courses
- No more than six of the fifteen credits toward the minor may be taken at an institution other than University of Maryland, College Park

Minor in French Studies

www.french.umd.edu

This 15-credit minor will provide students with a solid overview of linguistic, cultural and literary aspects of the study of French.

Courses required for the minor, in this order, are:

FREN 204, FREN 250, FREN 301

Following completion of this core sequence, students will choose two courses from the following:

FREN 302 or FREN303
FREN 306, 311 or 312
FREN 351, 352, or any 400-level course/s

- All courses must be taught in French
- A maximum of six (6) credits can be applied to the minor from courses taken at other institutions, with the exception of Maryland in Nice, which allows the transfer of nine (9) credits
- All courses presented for the minor must be passed with a grade of "C" or better
- Students who begin their study as native/fluent speakers should seek the advice of the advisor before choosing the courses they will use to replace the core minor courses.

Minor in German Language, Literature, and Culture

www.german.umd.edu

This minor will provide students with an in-depth understanding of German Language and Literature as a source of culture. Building on these essentials, students can concentrate on Language, Literature or Culture, or a combination of these fields. This will be accomplished by taking 5 courses beyond GERM 203 or its equivalent. Students will determine, in close consultation with the German undergraduate advisor, how to constitute their own concentration.

Minor Requirements:

15 credits - 5 courses beyond GERM203 or its equivalent

- 3 of these 5 courses (9 hours) must be upper division level
- Prerequisites: GERM 103 and 203 are required, or their equivalents as determined through departmental advising
- All courses must be passed with a grade of "C" or higher.

Minor in Italian Language and Culture

www.italian.umd.edu

The minor in Italian Language and Culture is an official recognition that a student has reached a certain level of proficiency in the target language. The minor will serve as a validation to potential employers of the student's proficiency in Italian.

Prerequisite: Successful completion of ITAL 203 - Intensive Intermediate Italian

18 credits are required for this minor:

A student must complete six courses in Italian above the 203 level of which three must be at the 300 or 400 level. The minor consists of a writing sequence, a speaking sequence, and one upper-level elective taught in Italian.

A. Writing Sequence Requirement (9 credits)

ITAL 204	Review Grammar and Composition
ITAL 207	Reading and Writing in Italian
ITAL 301	Italian Composition

B. Speaking Sequence Requirements (6 credits)

ITAL 211	Intermediate Composition
ITAL 311	Advanced Oral Expression: Current Events

C. Additional Course Requirements (3 credits)
One additional course taught in Italian at the 300/400 level

- All courses must be taught in Italian
- A maximum of six (6) credits can be applied to the minor from courses taken at other institutions, with the exception of the Study Abroad Program in Italy, which allows the transfer of nine (9) credits.
- All courses presented for the minor must be passed with a grade of "C" or better. Students who begin their study as native/fluent speakers should seek the advice of the Italian advisor before choosing the courses they will use to replace the core minor courses.

Minor in Japanese

www.japanese.umd.edu

The minor in Japanese consists of 15 credits of coursework in language (JAPN202 and above), literature, and linguistics and is designed to provide a concentration in Japanese language and an introduction to the academic fields of Japanese literature and linguistics. The minor will,in addition, allow Japanese heritage speakers the opportunity to engage in language study for special purposes (such as Business Japanese, Diplomatic Translation, or Classical Japanese) as well as in the study of Japanese linguistics and literature.

Requirements for the 15 credit minor in Japanese include:

A. 6 credits of Japanese language courses, selected from the following list, with placement based on the student's language proficiency: JAPN 202 (6), JAPN 301 (6), JAPN 302 (6), JAPN 401 (3), JAPN 402 (3), JAPN 403 (3), JAPN 404 (3), JAPN 405 (3), JAPN 406 (3), JAPN 411 (3), JAPN 412 (3), JAPN 499 (3)

B. One 3 credit course focusing on Japanese linguistics selected from the following list: JAPN 421, JAPN 422, JAPN 428, JAPN 438, EALL 300

C. One 3 credit course focusing on Japanese literature selected from the following list: JAPN 217, JAPN 298, JAPN 317, JAPN 414, JAPN 415, JAPN 416, JAPN 418

D. An additional 3 credits from one of the three lists above.

- At least nine of the fifteen hours must be at the 300-400 level.
- Students must receive a "C" or better in all courses used for the minor.
- No more than 6 of the 15 credits toward the minor may be taken at an institution other than UMCP

Minor in Korean Studies

www.korean.umd.edu

The Korean Studies Minor will provide students with a basic knowledge of Korea and its language and culture. Five three-credit courses are required, and three of the five must be at the 300-level (or above). This minor is open to both heritage and non-heritage students alike. Those interested should contact the faculty in the Korean Language Program for advisement.

15 credits are required for the minor:

A. Korean language and language-related courses:

Two 3-credit courses devoted specifically to Korean language or language-related studies. Both must be at the second-year level or above. Courses that fit this description include the following:

KORA201	Intermediate Korean I
KORA202	Intermediate Korean II
KORA211	Introductory Reading for Speakers of Korean I
KORA212	Introductory Reading for Speakers of Korean II
KORA241	History of the Korean Language
KORA242	Introduction to Korean Linguistics
KORA311	Korean for Heritage Speakers, Advanced-Low I
KORA312	Korean for Heritage Speakers, Advanced-Low II

B. Korea-related courses:

Three 3-credit courses in Korea-related studies from fields such as history, sociology, and art history. At least one of these courses must have broad East Asian content to provide breadth to the minor. (Examples of such East Asian courses are marked with an asterisk.)

HIST319N*	Korean History
SOCY398K	Contemporary South Korean Society
HIST 284*	East Asian Civilization I
HIST 285*	East Asian Civilization II
HIST 319C*	Asian Age in World History
EALL 300*	The Languages of East Asia
GVPT 359C*	Politics of Japan and Northeast Asia
ARTH 290*	Art of Asia

- Other Korea-related courses may be used to satisfy the requirements, subject to the approval of the Korean Program advisor.
- Three of the five required courses must be at the 300-level or above.
- All courses presented for the minor must be passed with a grade of "C" or better.
- No more than six credits can overlap with the major, and no more than six credits can come from off-campus (study abroad, transfer, etc.).

Minor in Persian Studies

www.persian.umd.edu

The Minor in Persian Studies is a series of five courses to be chosen in consultation with the departmental advisor.This 15-credit minor will provide students with a background in linguistic, literary, and cultural aspects of the study of Persian, including the cultures of Iran, Afghanistan, Persian-speaking Central Asia, and the Persian diaspora. Students will work toward linguistic competence in speaking, reading, writing, and listening; students will be introduced to Iranian culture in its diverse perspectives, practices, and products.The Minor in Persian Studies complements a range of professions, including careers in education, engineering, government, journalism, the arts, business, and communication.

- A minimum of 9 credits must be earned through courses taught in Persian.
- Up to 6 may be earned from PERS courses taught in English.
- A minimum of 9 credits must be at the upper level.
- All courses presented for the minor must be passed with a grade of 2.0 or better.
- A maximum of 6 credits may be applied to the minor from courses taken at other institutions.
- No more than 6 credits of the minor may be used to satisfy the requirements of a major.

No courses applied to the minor may count toward another minor. All students planning to pursue the Minor in Persian Studies should contact the undergraduate advisor for Persian, who will be responsible for oversight and record keeping.

Prerequisites (14 credits):

PERS 101 Elementary Persian I (4 credits)
PERS 102 Elementary Persian II (4 credits)
PERS 201 Intermediate Persian I

There are no prerequisites for students with equivalent knowledge.

Course requirements:
A. Courses taught in Persian (at least 9 credits); All prerequisites imply "or equivalent knowledge."

PERS 202 Intermediate Persian II (prereq 201/211)
PERS 301 Advanced Persian I (prereq 202/212)
PERS 302 Advanced Persian II (prereq 301)
PERS 452 Modern Persian Literature: A Survey (prereq 302)
PERS 453 Classical Persian Literature: A Survey (prereq: 6 credits Arabic)

B. Persian Studies Courses Taught in English (up to 6 credits; no prerequisites)

PERS 251 Modern Iran (SH/D)
PERS 283 Iranian Cinema (HA-HO/D)
PERS 353 Iranian Life in Literature and Film (D)
PERS 371 Introduction to Persian Literature in Translation (D)
PERS 441 Islam in Iran (D)

Minor in Portuguese Language, Literatures and Cultures

www.portuguese.umd.edu

This 15-credit minor will provide students with a solid overview in the linguistic, literary and cultural aspects of Portuguese-speaking countries, with emphasis on Brazil.

Prerequisite: Portuguese 104 and 204 or equivalent

Requirements: Students will choose the fifteen credits from among the following courses: Portuguese 205, 228*, 311, 320, 321, 350, 378*, 408, 409, 421, 470, 478*.

**Portuguese 228, 378, 478 are conducted in English. The majority of written assignments will be in Portuguese for those students in the minor program.*

- A maximum of 6 credits may be applied to the minor from courses taken at other institutions.
- A maximum of 9 credits may be applied from a University of Maryland Study Abroad program.
- All courses must be passed with a grade of C or better.

All administrative records and advising will be handled by the advisor for the Portuguese Program: Regina Igel, ri@umd.edu, 301-405-6457.

Minor in Russian Studies

www.russian.umd.edu

The Minor in Russian Studies is a series of five courses to be chosen in consultation with the departmental advisor. The completion of a Minor in Russian Studies provides students with a broad background in Russian language, literature and culture.

A minimum of fifteen credits/five courses* is required, to be chosen from among the following:

Courses taught in Russian:
RUSS 201, 202, 210, 211, 301, 302, 303, 307, 321, 322, 381, 382, 401, 402,403, 404, 405, 406, 407, 409, 410, 411, 412, 431, 432, 433, 434, 473

Courses in English:
RUSS 221, 222, 281, 282, 298, 327, 328, 329, 398, 439

Courses in SLAVIC may also be counted toward the Russian Studies Minor: SLAV 469, 475, 479

Prerequisites for the Minor: RUSS 102 (Elementary Russian) or the equivalent as determined by the department

**Note that in most cases, five courses of 3-credits each will fulfill the 15-credit requirement. However, RUSS 201 and 202 are 5 credit courses. If a student chooses to count these two courses as part of the Minor, they are still required to complete three additional courses (for a total of five courses).*

- Courses taken through Study Abroad programs may be applied.
- A minimum of six credits must be earned from courses in Russian.
- At minimum of nine credits must be at the 300- or 400-level.
- Transfer credits (from study abroad or another US institution) may count toward the Minor with approval of the department. In most cases, a maximum of six transfer credits will be approved.
- All courses counting toward the minor must be passed with a "C" or better.
- Substitutions of other departmental offerings may be approved by the advisor.

Oversight of the Minor program will be through the normal academic processes of the Russian program in the School of Languages, Literatures and Cultures. The Undergraduate Advisor will be responsible for ensuring that students are properly advised and that records are appropriately kept.

Minor in Spanish Language and Cultures

www.spanish.umd.edu

This minor is undergoing review. Please visit the Department website for details.

The Minor in Spanish Language and Cultures is a series of five courses in Spanish to be chosen in consultation with the departmental advisor. Courses taken through Study Abroad programs may be applied. This 15 credit minor will provide students with a solid background in linguistic, cultural and literary aspects of the study of Spanish.

Students may choose from the following courses. A minimum of 9 credits must be on the 300 or 400 level.

SPAN 206 Review of Oral and Written Spanish for Native Speakers Educated in the US
SPAN 207 Reading and Writing in Spanish
SPAN 221 Introduction to Literature
SPAN 301 Advanced Grammar and Composition I
SPAN 302 Advanced Grammar and Composition II
SPAN 306 Spanish II for Native Speakers
SPAN 307 Oral Communication Skills for Native Speakers of Spanish
SPAN 310 Spanish Phonetics
SPAN 311 or 312 Advanced Conversation I or Advanced Conversation II
SPAN 315 Commercial Spanish I
SPAN 316 Practicum in Translation I
SPAN 317 Translation II
SPAN 318 Translation of Technical Texts
SPAN 321 Survey of Spanish Literature I
SPAN 322 Survey of Spanish Literature II
SPAN 323 Survey of Latin American Literature I
SPAN 324 Survey of Latin American Literature II
SPAN 325 Spanish Civilization I
SPAN 326 Spanish Civilization II
SPAN 346 Latin American Civilization I
SPAN 347 Latin American Civilization II
SPAN 356 Literary Translation I
SPAN 357 Literary Translation II
SPAN 415 Commercial Spanish II
SPAN 422 Cross-Cultural Communication
SPAN 425 Introduction to Hispanic Linguistics I: Basic Concepts
SPAN 426 Introduction to Hispanic Linguistics II: Language In Use
SPAN 448 Special Topics in Latin American Civilization
SPAN 449 Special Topics in Spanish Civilization
All literature courses on the 400 level

- All courses must be taught in Spanish.
- Native or heritage learners of Spanish should seek the advice of the Undergraduate Advisor for Spanish before choosing their courses.
- The minor is open to all students except Spanish majors. A grade of "C" or better is required in each class.
- A maximum of 6 credits may be applied to the minor from courses taken at other institutions. However, a maximum of 9 credits may be applied from a Universit Universityof Maryland study abroad program.

Minor Advisor:
Karen Remson
2211 Jiménez Hall, 301-405-6452
kremson@umd.edu

Minor in Spanish Language, Business, and Cultures

www.spanish.umd.edu

This minor is undergoing review. Please visit the department website for details.

The Minor in Spanish Language, Business, and Cultures is a series of five courses in Spanish to be chosen in consultation with the departmental advisor. Courses taken through Study Abroad programs may be applied. This 15 credit minor will provide students with a solid background in language, culture, and concepts important for business in the Spanish speaking world.

Minor Requirements:

A. Students must complete SPAN 315 Commercial Spanish I and either SPAN 415 Commercial Spanish II or SPAN 422 Cross-Cultural Communication.

B. Students may choose from the following courses to complete the other 9 credits. A minimum of 9 credits must be on the 300 or 400 level.

SPAN 206 Review of Oral and Written Spanish for Native Speakers Educated in the US
SPAN 207 Reading and Writing in Spanish
SPAN 221 Introduction to Literature
SPAN 301 Advanced Grammar and Composition I
SPAN 302 Advanced Grammar and Composition II
SPAN 306 Spanish II for Native Speakers
SPAN 307 Oral Communication Skills for Native Speakers of Spanish
SPAN 310 Spanish Phonetics
SPAN 311 Advanced Conversation I or
SPAN 312 Advanced Conversation II
SPAN 316 Practicum in Translation I
SPAN 317 Translation II
SPAN 318 Translation of Technical Texts
SPAN 321 Survey of Spanish Literature I
SPAN 322 Survey of Spanish Literature II
SPAN 323 Survey of Latin American Literature I
SPAN 324 Survey of Latin American Literature II
SPAN 325 Spanish Civilization I
SPAN 326 Spanish Civilization II
SPAN 346 Latin American Civilization I
SPAN 347 Latin American Civilization II
SPAN 356 Literary Translation I
SPAN 357 Literary Translation II
SPAN 425 Introduction to Hispanic Linguistics I: Basic Concepts
SPAN 426 Introduction to Hispanic Linguistics II: Language In Use
SPAN 448 Special Topics in Latin American Civilization
SPAN 449 Special Topics in Spanish Civilization
All literature courses on the 400 level

- All courses must be taught in Spanish. Native or heritage learners of Spanish should seek the advice of the Undergraduate Advisor for Spanish before choosing their courses.
- The minor is open to all students except Spanish majors. A grade of "C" or better is required in each class.
- A maximum of 6 credits may be applied to the minor from courses taken at other institutions. However, a maximum of 9 credits may be applied from a Universit Universityof Maryland study abroad program.

Minor Advisor:
Karen Remson
2211 Jiménez Hall, 301-405-6452
kremson@umd.edu

Latin American Studies Certificate

College of Arts and Humanities
0128B Holzapfel Hall, 301-405-6459
www.lasc.umd.edu
lasc@umd.edu

The multidisciplinary certificate program in Latin American Studies is open to University of Maryland, College Park undergraduates in any major who are interested in international studies and Latin America. The undergraduate Certificate in Latin American Studies will be awarded to students who have completed 21 credits with a grade of C or better in the following areas.

Requirements for Certificate

A. Core curriculum for all certificate students (12 credits)

LASC/SPAN/PORT 234	Issues in Latin American Studies I
LASC/SPAN/PORT 235	Issues in Latin American Studies II
HIST 250 or HIST 251	Latin American History I or II
LASC/SPAN/PORT/ANTH 458	Senior capstone course in Latin American Studies

B. Additional courses in Latin American Studies (9 credits)

Nine credits are additional courses that must be chosen from an approved list and from at least two different departments. At least six credits must be at the 300- or 400-level. See Latin American Studies advisor for details.

C. Foreign Language Competency

All certificate students must demonstrate their competence in either Spanish or Portuguese. Competency may be proven with a grade of C or better in an intermediate-level course (PORT 204, SPAN 203) or higher. Native speakers of Spanish or Portuguese or students with extensive experience in these languages should consult with the Latin American Studies advisor. Interested students should contact the LASC Center at lasc@umd.edu or 301-405-6459 and/or our advisor, Dr. Eyda Merediz, 2225 Jimenez Hall during her office hours posted in our web page at www.lasc.umd.edu

Letters and Sciences

For information, see Office of Undergraduate Studies in Chapter 6.

Certificate in Lesbian, Gay, Bisexual and Transgender Studies

2212 Marie Mount Hall, 301-405-5428
www.lgbts.umd.edu
Director: Dr. Marilee Lindemann

The Program in Lesbian, Gay, Bisexual and Transgender Studies (LGBT) offers an interdisciplinary undergraduate certificate and a minor designed to examine the lives, experiences, identities and representations of LGBT persons, those who are today described as having a minority sexual orientation or who are gender transgressive. Students study LGBT families and communities, cultures and subcultures; histories, institutions, languages and literatures; economic and political lives; and the complex relations of sexual minorities to the culture and experience of the gender conformant and (hetero)sexual majority. LGBT Studies is an interdisciplinary and multidisciplinary field, and promotes the application of new theories and methodologies (e.g., queer, feminist, critical race, and multicultural theories) to established disciplines, and it advances the generation of new knowledge within traditional fields of scholarship. Through study of sexual minorities, students gain an understanding of and respect for other differences in human lives such as age, ability, class, ethnicity, gender, race, and religion. With their faculty advisors, certificate candidates design a program that complements their major field of study.

Certificate Requirements:

21 credits: 15 credits are in required courses, while 6 credits are earned in two elective courses.

A. Required core curriculum for the Certificate in LGBT Studies (15 credits)

1. LGBT200- Introduction to Lesbian, Gay, Bisexual, and Transgender Studies
2. One lower-level course focused on literature, art, or culture by or about LGBT people, either ENGL 265 or CMLT 291;
3. One of the following upper-division courses focused on the personal, social, political, and historical aspects of LGBT people: LGBT 350, PHIL 407, or WMST 494;
4. One of the following upper-division courses focused on literature, art, or culture by or about LGBT people: ENGL 359,459, 465; or LGBT 327
5. One of the following:
   a. LGBT488
   Seminar in LGBT Studies

   b. LGBT386
   Supervised Internship - LGBT Community Organizations

B. Elective courses for the Certificate in LGBT Studies (6 credits)

Students choose 6 hours of elective credits in consultation with their advisor in LGBT Studies. At least 3 hours of elective credits must be from upper-division courses (i.e., those numbered 300 or above). Students are encouraged to choose electives to complement their knowledge of LGBT people and issues by exploring disciplines that contrast with the major field of study. Students may select elective courses from the list of core courses above or from a list of approved courses maintained by the program. The list is updated regularly and available at www.lgbts.umd.edu/minor.html. A student may also petition to have any other course fulfill this requirement by providing evidence, usually the syllabus, that a substantial amount of the course work, usually including a term paper, consists of LGBT material.

- Appropriate substitutions for courses listed in categories 2 through 4 above may be made with approval from the Director of LGBT Studies.
- No course earned with a grade below "C" (2.0) will count toward the certificate in LGBT Studies.
- Students may use a maximum of nine credits (or three courses) to satisfy the requirements of both their major and the certificate in LGBT Studies.
- No more than nine of the required credits may be taken at an institution other than the University of Maryland, College Park.
- Students must declare the certificate in LGBT Studies to the Director of LGBT Studies one year prior to their intended graduation to assure appropriate advising and record-keeping.

Minor Requirements:
15 credits: 12 credits are in required courses, while 3 credits are earned in one upper-level elective course.

A. Required core curriculum for the Minor in LGBT Studies (12 credits)

1. LGBT 200--Introduction to Lesbian, Gay, Bisexual, and Transgender Studies
2. One lower-level course focused on literature, art, or culture by or about LGBT people, either ENGL 265 or CMLT 291;
3. One of the following upper-division courses focused on the personal, social, political, and historical aspects of LGBT people: LGBT 350, PHIL 407, or WMST 494;
4. One of the following upper-division courses focused on literature, art, or culture by or about LGBT people: ENGL 359, 459, 465; or LGBT 327.

B. Elective course for the Minor in LGBT Studies (3 credits)

An upper-division elective will complement the required courses. This elective may be a course from categories 3 and 4 above that has not been used to fulfill requirements; or it may be one of the capstone courses in LGBT Studies (LGBT 386 or LGBT 488), or a course chosen from the list of approved electives for the LGBT Studies program. The list of approved electives is available at www.lgbts.umd.edu/minor.html. A student may also petition to have any course fulfill this requirement by providing evidence, usually the syllabus, that a substantial amount of the course work, usually including a term paper, consists of LGBT material.

- Appropriate substitutions for courses listed in categories 2 through 4 above may be made with approval from the Director of LGBT Studies.
- No course earned with a grade below "C" (2.0) will count toward the minor in LGBT Studies.
- Students may use a maximum of six credits (or two courses) to satisfy the requirements of both their major and the minor in LGBT Studies. However, courses taken to complete the minor in LGBT Studies may not be used to satisfy the requirements of another minor.
- No more than six of the required credits (or two courses) may be taken at an institution other than the University of Maryland, College Park. However, at least six upper division credits applied to the minor must be taken at this university.
- Students must declare the minor in LGBT Studies to the Director of LGBT Studies one year prior to their intended graduation to assure appropriate advising and record-keeping.

Linguistics (LING)

College of Arts and Humanities
1401 Marie Mount Hall, 301-405-7002
www.ling.umd.edu
Chair: N. Hornstein
Professors: H. Lasnik (Dist Univ Prof), C. Phillips, P. Pietroski, D. Poeppel, J. Uriagereka, A. Weinberg
Associate Professors: W. Idsardi, J. Lidz, P. Resnik
Assistant Professors: V. Hacquard, A. Williams
Instructors: A. Zukowski (Asst Res Sci)
Lecturers: M. Antonisse, T. Bleam

The Major

The Linguistics Department offers courses on many aspects of language study and an interdisciplinary major leading to a Bachelor of Arts. Language is basic to many human activities and linguistics relates to many other disciplines which include work on language.

Work on language has provided one of the main research probes in philosophy and psychology for most of the 20th century. It has taken on a new momentum in the last 30 years and language research has proven to be a fruitful means to cast light on the nature of the human mind and on general cognitive capacity. Several courses focus on a research program which takes as a central question: How do children master their native language? Children hear many styles of speech, variable pronunciations, and incomplete expressions, but, despite this flux of experience, they come to speak and understand speech effortlessly, instantaneously, and subconsciously. Research aims to discover how this happens, how a person's linguistic capacity is represented in the mind, and what the genetic basis for it is. Students learn how various kinds of data can be brought to bear on their central question and how that question influences the shape of technical analyses.

The major in Linguistics is designed for students who are primarily interested in human language per se, or in describing particular languages in a systematic and psychologically plausible way, or in using language as a tool to reveal some aspect of human mental capacities. Such a major provides useful preparation for professional programs in foreign languages, language teaching, communication, psychology, speech pathology, and artificial intelligence (and thus in computer work).

Program Learning Outcomes

The Department of Linguistics B.A. program seeks to expose majors to fundamental questions about the nature of the human mind, using Language as a vehicle for examining this issue. The program aims to cultivate strong empirical research skills, data analysis, application of scientific methodology, and the ability to communicate clear, logical arguments.

1. Students can analyze a sentence from English or another language, providing a syntactic parse tree and evidence for their analysis (constituency tests and other tests).
2. Students can provide a phonological analysis of any language given a sufficient data set (including data from non-Western languages).
3. Students understand and can reproduce arguments for the existence of mental grammar.
4. Students understand and can reproduce arguments for a genetic component of human language.
5. Students can apply the scientific method to data analysis. Specifically, they can formulate generalizations, specify the predictions of a hypothesis with respect to independent generalizations, and test predictions.

Requirements for the Major

A grade of at least 'C' is required in all major courses.

		Credits
	Core required of all majors:	**15**
LING240	Language and the Mind	3
LING311	Syntax I	3
LING321	Phonology I	3
	Two from:	6
LING312	Syntax II	
LING322	Phonology II	
LING330	Historical Linguistics	
LING410	Grammar and Meaning	
LING420	Word Formation	
HESP403	Introduction to Phonetic Science	
	Grammars and Cognition Track	**24**
LING350	Philosophy of Language	3
PSYC100	Introduction to Psychology	3
PSYC341	Introduction to Memory and Cognition	3
	One from:	3
PHIL170	Introduction to Logic	
PHIL271	Symbolic Logic I	

	Linguistics Electives	6
LING	two upper level LING electives	
	Electives	6
ELECT	two electives in LING, PSYC, HESP, PHIL, or CMSC	
	Language Track	**24**
LANG	15 credits of a single chosen language	15
LANG	3 credits in structure or history of the language	3
	Linguistics Electives	
LING	two upper level LING electives	6

There are no requirements for support courses for the Linguistics major.

Other Requirements for the Major

- LING 240 must be taken before any other courses in the major. LING 240 is offered every semester.
- After LING 240, students should take LING 311 (Syntax I) and LING 321 (Phonology I), as they are prerequisites for other required courses. These courses can be taken together in the same semester.
- LING 312 (Syntax II) and LING 322 (Phonology II) are only offered in the Spring.
- LING 410 (Grammar and Meaning) is only offered in the Fall.
- Optional courses for the major are not necessarily offered on a regular basis. Students should check with the undergraduate advisor to find out which courses will be offered and when.
- A grade of C or better is required in prerequisite courses.
- For the Language Track, the "15 credits of a single chosen language" must be courses that focus on language (and not, for example, history or culture taught in the language).
- The "structure or history of the language" course is a linguistics course that focuses on the chosen language. This course must be approved by the linguistics advisor. If no such course is offered by the language department, the linguistics advisor will suggest a substitute.
- Electives for the Cognition Track must be approved by the linguistics advisor.

Requirements for the Minor

15 credit hours: LING 200, 240, 321, 311, and one upper level linguistics elective.

All courses presented for the minor must be passed with a grade of 'C' or better.

Undergraduate Research Experiences

There are opportunities in the department for undergraduate students to get involved in doing research. Students interested in research in linguistics should submit a resume and/or project proposal to the undergraduate advisor or to an appropriate faculty member. Attempts will be made to match students with appropriate faculty advisors. The possibility of doing research is not guaranteed for every student, but will depend on the student's skills and the availability and willingness of a faculty member to direct the project.

Honors Program

Academically talented Linguistics majors with junior standing may petition to become honors candidates in Linguistics. Honors students work on a research project under a faculty advisor and write an honors thesis.

Scholarships and Financial Assistance

The Office of Student Financial Aid (OSFA) administers all types of federal, state and institutional financial assistance programs and, in cooperation with other university offices, participates in the awarding of scholarships to deserving students. For information, visit: www.financialaid.umd.edu.

LOGISTICS, BUSINESS, AND PUBLIC POLICY (BMGT)

The Robert H. Smith School of Business
1570 Van Munching Hall, 301-405-2286
www.rhsmith.umd.edu/undergrad
Chair: R. Windle
Professors: S. Boyson (Res Prof, Aff Res Prof), T. Corsi, M. Dresner, C. Grimm, P. Morici, R. Windle
Associate Professors: T. Anenson (Assoc Prof), W. Chung, P. Evers
Assistant Professors: G. Cohen (Lecturer), C. Dezso, Y. Dong, G. Mark (Asst Prof), R. Sampson, D. Somaya
Lecturers: J. Boroumand (Lecturer, General Associate), A. Jacobs (Lecturer), V. Jain (Lecturer), W. McClenahan, J. Miller, B. Nelson (Tyser Teaching Fellow), C. Olson (Tyser Teaching Fellow), H. Turner (Tyser Teaching Fellow), Y. Zhou (Lecturer)
Professors Emeriti: B. Leete, L. Preston

The Major

Three curriculum concentrations are offered through the Logistics, Business, and Public Policy department:

Supply Chain Management
General Business (includes an Entrepreneurship Track)

International Business

Supply Chain Management: The supply chain encompasses all organizations involved in production of a good or service and its ultimate delivery to the end customer. Supply chain managers oversee many varied but inter-related processes including the flow of materials, information, and transactions. Logistics deals primarily with the materials flow component of the supply chain, and logistics managers are responsible for fulfilling customer orders while simultaneously controlling distribution costs.

While transportation is the heart of logistics; inventory control, warehousing, order processing, materials handling, packaging, and customer service are important logistics activities. These logistics activities comprise up to 30 percent of total costs for many businesses. The cost of freight transportation alone is about 8 percent of the nation's annual domestic product.

General Business is designed for those who desire a broad course of study in business and management. This degree is appropriate, for example, for those who plan to enter small-business management or entrepreneurship where general knowledge of the various fields of study may be preferred to a more specialized curriculum concentration.

International Business responds to the global interest in international economic systems and their multicultural characteristics. This degree combines the college-required courses with International Business courses and provides students the opportunity to apply a specified upper level foreign language course toward this specialization's requirements. It is strongly recommended that this program be declared in combination with another major in or outside of business in order to assure that graduates will have specialized career focus.

Admission to the Major

See Robert H. Smith School of Business entry in chapter 6 for admission requirements.

Requirements for the Major

Supply Chain Management

Course requirements for the junior-senior curriculum concentration in Supply Chain Management are as follows:

		Credits
BMGT370	Introduction to Transportation	3
BMGT372	Introduction to Logistics and Supply Chain Management	3
BMGT476	Technology Applications in Supply Chain Management	3
	Two of the following courses:	6
BMGT373	Supply Chain Management Internship	
BMGT470	Carrier Management	
BMGT471	Seminar in Supply Chain Management: An Executive Perspective	
BMGT472	Purchasing and Inbound Logistics	
BMGT475	Supply Chain Strategy and Network Design	
BMGT477	International Supply Chain Management	
	One of the following courses:	3
BMGT302	Business Computer Application Programming	
BMGT332	Operations Research for Management Decisions	
BMGT385	Operations Management	
BMGT455	Sales Management	
BMGT482	Business and Government	
BMGT484	Electronic Marketing	
	Or one of the following not selected above: BMGT373, 470, 471, 472, 475 or 477	
	Total Major Requirements	18
	Upper Level Economics Requirement *One of the following courses:*	3
ECON305	Intermediate Macroeconomic Theory and Policy	
ECON306	Intermediate Microeconomic Theory	
ECON330	Money and Banking	
ECON340	International Economics	

Note: Students who have completed ECON325 and ECON326 can substitute these courses for ECON305 and ECON306 respectively.

General Business

General Business majors at the at the College Park campus are offered the standard major track, and students attending the Shady Grove campus are offered the entrepreneurship track of General Business. Course requirements for the junior-senior curriculum concentration in General Business and Management Standard

Track and Entrepreneurship Track are as follows:

	Required of all General Business majors:	
	One of the following (Supply Chain Management)	3
BMGT372	Introduction to Logistics & Supply Chain Mgt.	
BMGT385	Operations Management	
	One of the following (Marketing)	3
BMGT353	Retail Management	
BMGT450	Integrated Marketing Communications	
	One of the following (International Business/Public Policy)	3
BMGT392	Introduction to International Business	
BMGT482	Business and Government	
BMGT496	Business, Ethics and Society	
	In addition, General Business majors must complete one of the following tracks:	
	Standard Track	
	One of the following (Accounting/Finance)	3
BMGT321	Managerial Accounting	
BMGT440	Advanced Financial Management	
	One of the following (Management & Organization)	3
BMGT360	Human Resource Management	
BMGT461	Entrepreneurship	
	One of the following (Decision & Information Technologies)	3
BMGT332	Operations Research for Management Decisions	
BMGT485	Project Management	
	Entrepreneurship Track	
	One of the following:	3
BMGT361	Entrepreneurship: Starting & Managing the Entrepreneurial Venture **or**	
BMGT461	Entrepreneurship	
BMGT363	Leadership in Organization	
BMGT365	Entrepreneurial Finance & Private Equity	
BMGT465	Business Plan for the New Venture	
	Total Major Requirements	**18/21**
	Upper Level Economics Requirements *Two of the following courses:*	6
ECON305	Intermediate Macroeconomic Theory & Policy	
ECON306	Intermediate Microeconomic Theory	
ECON330	Money and Banking	
ECON340	International Economics	

Note: Students who have completed ECON325 and ECON326 can substitute these courses for ECON305 and ECON306 respectively.

International Business

Course requirements for the junior-senior curriculum concentration in International Business are:

		Credits
BMGT392	Introduction to International Business	3
BMGT454	International Marketing	3
BMGT477	International Supply Chain Management	3
BMGT446	International Finance	3
BMGT463	Cross-cultural Challenges in Business	3
BMGT466	Global Business Strategy	3
	Total BMGT	18
ECON340	International Economics	3
	One of the following:	3
	ECON 305, 306, 315, 316, 330, 380 or agreed upon foreign language credits which includes CHIN 412, FREN 406, GERM 412, ITAL 406, JAPN 404, RUSS407, SPAN 415	
	Total ECON/LANGUAGE	6

In addition to the major requirements listed above, please see the Roberts H. Smith School of Business under The Colleges and Schools or www.rhsmith.umd.edu for a listing of additional Smith School degree requirements that apply to all Smith School majors.

Advising

General advising for students admitted to the Smith School of Business is available Monday through Friday in the Office of Undergraduate Programs, 1570 Van Munching Hall, 301-405-2286. It is recommended that students visit this office each semester to ensure that they are informed about current requirements and procedures. Transfer students entering the university can be advised during spring, summer, and fall transfer orientation programs. Contact the Orientation Office for further information, 301-314-8217.

MARKETING (BMGT)

The Robert H. Smith School of Business
1570 Van Munching Hall, 301-405-2286
www.rhsmith.umd.edu/undergrad
Chair: R. Rust
Professors: A. Kirmani, R. Rust, M. Wedel
Associate Professors: G. Biehal, R. Hamilton, P. Kannan, R. Krapfel, W. Moe, R. Ratner, J. Srivastava, J. Wagner
Assistant Professors: T. Chen (Asst Prof), R. Ferraro, Y. Foutz, Y. Joshi, A. Pocheptsova (Asst Prof), W. Rand (Asst Prof, Aff Asst Prof), M. Trusov, J. Zhang (Asst Prof)
Lecturers: H. Boyd (Tyser Teaching Fellow), M. Harms, M. Yeagle
Adjunct Professors: S. Bensimon (Lecturer), M. Bonavia (Lecturer), K. Boyle (Lecturer), C. Gilmer (Lecturer), K. Havey (Lecturer), S. Mazvancheryl (Lecturer)
Professors Emeriti: T. Greer, W. Nickels (Assoc Prof Emeritus)
Visiting Faculty: R. Lefkoff (Tyser Teaching Fellow), D. Whitney (Tyser Teaching Fellow)

The Major

The goal of marketing is to satisfy all the stakeholders of the firm-employees, dealers, stockholders, and customers-by seeing that quality goods and services are developed and provided at fair prices and in a way that benefits the community and society. World-class competition has forced businesses to develop marketing programs that are as good as the best. This means getting closer to the customer, joining other organizations to create value for the consumer, and designing integrated distribution and communication programs that provide a seamless flow from producers to consumers. Pricing, communication/promotion, product/service, and distribution activities inherent in the development of marketing programs are applicable to non-profit organizations, business-to-business organizations, and firms that sell to ultimate consumers.

Many types of careers are available to the marketing major. These include, but are not limited to: sales, advertising, retailing, product/service management, and marketing research. Because of the many different employment opportunities in marketing, many marketing electives are offered along with three core courses required of all marketing majors-consumer analysis, marketing research, and marketing strategy.

Admission to the Major

See Robert H. Smith School of Business entry in chapter 6 for admission requirements.

Requirements for the Major

Course requirements for the junior-senior curriculum concentration in Marketing are as follows:

		Credits
BMGT451	Consumer Analysis	3
BMGT452	Marketing Research Methods	3
BMGT457	Marketing Policies and Strategies	3
	Three of the following courses:	9
BMGT352	Customer-Centric Innovation	
BMGT353	Retail Management	
BMGT357	Retailing and Marketing Internship *(3 credits only)*	
BMGT372	Introduction to Logistics and Supply Chain Management	
BMGT450	Integrated Marketing Communications	
BMGT454	Global Marketing	
BMGT455	Sales Management	
BMGT458	Special Topics in Marketing *(maximum of 6 credits if content differs)*	
BMGT484	Electronic Marketing	
	Total BMGT	18
	One of the following:	3
ECON305	Intermediate Macroeconomic Theory and Policy	
ECON306	Intermediate Microeconomic Theory	
ECON330	Money and Banking	
ECON340	International Economics	
	One additional ECON from the following:	3
	ECON 305, 306, 311, 315, 330, 340, 375, 380 or any 400-level ECON	
	Total ECON	6

Note: Students who have completed ECON325 and/or ECON326 can substitute these courses for ECON305 and/or ECON 306 respectively

In addition to the major requirements listed above, please consult "Colleges and Schools" on this site or www.rhsmith.umd.edu for a listing of additional Smith School degree requirements that apply to all Smith School majors.

Advising

General advising for students admitted to the Smith School of Business is available Monday through Friday in the Office of Undergraduate Programs, 1570 Van Munching Hall, 301-405-2286. It is recommended that students visit this office each semester to ensure that they are informed about current requirements and procedures. Transfer students entering the university can be advised during spring, summer, and fall transfer orientation programs. Contact the Orientation Office for further information, 301-314-8217.

Materials Science and Engineering (ENMA, ENNU)

A. James Clark School of Engineering
2135 Chemical and Nuclear Engineering Building, 301-405-5207
www.mse.umd.edu
Chair: R. M. Briber
Professors: M. Al-Sheikhly, S. Ankem, M. Bernstein (Vice President of Research, Prof. of Practice), A. Christou, G. Oehrlein, A. Roytburd, G. Rubloff, L. Salamanca-Riba, M. Wuttig
Associate Professors: I. Lloyd, L. Martinez-Miranda, G. Pertmer, R. Phaneuf, I. Takeuchi
Assistant Professors: J. Cumings, O. Rabin, J. Seog
Affiliate Professors: B. Eichhorn, A. Flatau, P. Kofinas, L. Sita, M. Zachariah
Affiliate Associate Professors: R. Ghodssi, B. Shapiro
Affiliate Assistant Professors: J. Aranda-Espinoza, C. Wang
Adjunct Professors: A. Barkatt, R. Cook, B. Hammouda, K. Hathaway, M. Kukla, R. Livingston, J. Rush
Adjunct Assistant Professors: J. Cui
Professors Emeriti: J. Silverman

The Major

The development, production and use of novel materials has become a major issue in all fields of engineering. Materials which are strong and light at the same time are needed for space structures; faster electro-optical switching materials will result in improved mass communications; and stronger high temperature plastics would improve the efficiency of transportation systems. Students will have the opportunity to work with faculty and industry on complex problems through projects, internships, and research and co-op experiences. A wide variety of careers are open to graduates of this program ranging from production and quality control in the traditional materials industries to the molecular construction of electronic materials in ultra-clean environments, and to the applications of materials in electronic packages. The application of materials to solve environmental, biomedical, energy, and reliability problems are also career options.

Students majoring in Materials Science and Engineering will receive a Bachelor of Science upon successful completion of the program. Courses offered by this department may be found under the acronym ENMA.

Program Objectives

The mission of the Materials Science and Engineering Department at the University of Maryland is to provide a quality engineering education, research at the forefront of the field, and leadership to the Materials and Engineering communities. Our educational programs will have the following objectives:

- Produce high quality graduates who will be successful in their chosen careers in industry, government or academia, in the State of Maryland, the nation and the world
- Give our students the foundation to define and solve engineering and science problems in the field of Materials Science and Engineering throughout their careers
- Provide our students with the ability to relate basic physics, math and engineering principles to the field of Materials Science and Engineering so they can function professionally as materials engineers and scientists
- Prepare our students to design and engineer materials and manufacturing systems for the next generation of products and deal effectively with the rapid pace of technological advances
- Continually improve our educational program, attract the best students and improve the visibility and stature of the program.

The Department will support our students with an educational program that has sufficient breadth in both fundamental and specialized engineering topics to insure our graduates meet the current and future needs of society. In the area of research, the Department conducts a range of scientific research programs and establishes partnerships with government and industry, both in Maryland and elsewhere, to accomplish this goal.

Program Learning Outcomes

The overall educational outcomes of the Materials Science and Engineering Program are to provide undergraduate engineering students:

- A solid foundation in mathematics, physics, chemistry, and basic engineering sciences
- An integrated program emphasizing structure, properties, processing and performance and the inter-relations between them along with the design of materials systems, experiments and data interpretation
- An opportunity to develop in-depth knowledge in specific areas of materials science and engineering which include: applications of materials and manufacturing, materials science, organic materials, electrical and electronic materials or biomaterials
- The opportunity to work with faculty and industry on complex problems through projects, internships, and research and co-op experiences
- A culminating design experience centered about a senior design project which brings together the many aspects of materials science and engineering in a global context that prepares the student to function as a practicing engineer on a multi-disciplinary team
- Continuous improvement of written and oral communication skills throughout the curriculum through lab reports, papers and individual/group project presentations
- Emphasis on current science and technology of materials in the curriculum and the relationship to the engineering profession in a societal and global context
- Integration of professional and ethical responsibility in the curriculum
- Mandatory semester advising and planning of individually tailored educational and curriculum goals for students
- Mandatory mentoring for four semesters generally during the sophomore and junior years. This is intended to provide the student with increased access to faculty members and an opportunity to discuss career options and preparation with other faculty members in addition to their advisor.

Academic Programs and Departmental Facilities

The Department's research facilities are available to undergraduates interested in pursuing research opportunities. Interested undergraduates are encouraged to work with a faculty member and his or her research team. Specific information on the facilities is available on the website: www.mse.umd.edu/research/laboratories.html

A partial list of facilities available to the students in the Department include:

- The modern Engineering Materials Instructional Lab www.memil.umd.edu/
- The Keck Laboratory for Combinatorial Nanosynthesis and Multiscale Characterization www.nanocenter.umd.edu/labs/Keck/index.php
- Nanoscale Imaging, Spectroscopy, and Properties Laboratory (NispLab) www.nisplab.umd.edu/
- Laboratory for Advanced Materials Processing (LAMP) www.mse.umd.edu/LAMP/
- Laboratory for Plasma Processing of Materials
- Functional Macromolecular Laboratory fml.umd.edu/
- The FabLab Micro and Nano Fabrication Laboratory run the University of Maryland NanoCenter www.nanocenter.umd.edu/labs/FabLab/

Admission to the Major

All Materials Science and Engineering students must meet admission, progress, and retention standards of the A. James Clark School of Engineering and the University of Maryland. See www.eng.umd.edu

Requirements for the Major

Requirements for the Materials Science and Engineering major include thorough preparation in mathematics, chemistry, physics, and engineering science as well as the required University general education (CORE) requirements. All students will be required to select an area of specialization, an upper-class science elective, and two technical electives. A minimum of 123 credits is required for a bachelor's degree. A sample program follows:

	Freshman Year	**Credits First Sem**	**Credits Second Sem**
CORE	CORE Program Requirements		6
ENES100	Introduction to Engineering Design (***can be taken 1st or 2nd semester*)	3**	
ENMA181*	Introduction to Engineered Materials, Seminar	1	
CHEM135	General Chemistry for Engineers	3	
CHEM136	Chemistry Lab	1	
MATH140	Calculus I	4	
MATH141	Calculus II		4
ENGL101	Introduction to Writing	3	
ENES102	Statics (***can be taken 1st or 2nd semester)*		3**
PHYS161	General Physics I		3
	Total	**14/15**	**16**
	**Recommended, but not required.*		

	Sophomore Year	**Credits First Sem**	**Credits Second Sem**
CORE	Core Program Requirements	3	3
MATH241	Calculus III	4	
MATH246	Differential Equations for Scientists and Engineers		3
PHYS260/261	General Physics I	4	
PHYS270/271	General Physics II		4
ENMA300	Introduction to Materials and their Applications	3	
ENMA301	Materials for Emerging Technologies		3
CHEM231/232*	Organic Chemistry I, **OR**		4 or 3
CHEM481*	Physical Chemistry I		
	Total	**14**	**16/17**
	**Chem 233 is required for students specializing in organic materials and recommended for students specializing in Biomaterials.*		

	Junior Year	**Credits First Sem**	**Credits Second Sem**
CORE	CORE Program Requirements	3	3
ENMA310	Materials Laboratory I, Structural Characterization	3	
ENMA311	Materials Laboratory II: Electromagnetic Properties		3
ENMA362	Mechanical Properties	4	
ENMA460	Physics of Solid Materials	3	

ENMA461	Thermodynamics of Materials		3
ENMA465	Microprocessing of Materials		3
ELECTIVE**	Specialization Electives	3	3
	Total	**16**	**15**

		Credits	**Credits**
	Senior Year	**First Sem**	**Second Sem**
CORE	CORE Program Requirements	3	3
ENMA463	Macroprocessing of Materials	3	
ENMA471	Kinetics, Diffusion and Phase Transformations	3	
ENMA490	Materials Design		3
ELECTIVES**	Specialization Electives	3	3
ELECTIVES	Technical Electives	3	3
ENME392	Statistical Methods for Product and Processes Development, **OR**		3
ENMA489R	Reliability of Materials		
ELECTIVE	Upper-level science elective	3	
	Total	**18**	**15**

Minimum Degree Credits: 124 or 125 credits and the fulfillment of all department, school, and university requirements.

Students are expected to take four specialization electives in one particular area during their junior and senior years. ***Students must consult with their advisor to select the specialization courses.* Five suggested specialization areas with example classes follow.
Materials Science: ENMA 420, 421, 422, 423, 424, 425, 440, 441, 464, 481, 489B, 489M, 489N, 495, 499
Applications of Materials and Manufacturing: ENMA 421, 423, 424, 425, 440, 464, 472, 481, 489B, 499, ENME 371
Polymeric Materials: ENMA 423, 464, 489M, 495, 496, 499
Electrical & Electronic Materials: ENMA 423, 441, 464, 481, 489C, 489M, 489N, 499
Biomaterials: ENMA 423, 425, 441, 464, 489M, 495, 496, 499

Other Requirements for the Major

Students majoring in Materials Science and Engineering must follow the academic policies developed by the A. James Clark School of Engineering. Students must achieve a C or better on all coursework in their major (including required non-engineering courses such as chemistry and physics). Students are encouraged to visit the Department webpage for a curriculum guideline. A multi-year academic plan will be developed in conjunction with their advisor. All Materials Science and Engineering students must be mentored by a faculty member four times generally during their sophomore and junior years (once per semester) to assist them in choosing their specialization area and to plan for post graduation.

Requirements for the Minor

The Department coordinates an interdisciplinary minor in Nanoscale Science and Technology through The Maryland NanoCenter.

Explosive growth in the field of nanometer scale science and technology (NS&T) has led in the past few years to many technological advances in devices and materials structured at the nanometer scale. The Interdisciplinary Minor Program of Study in Nanoscience and Technology at the University of Maryland is intended to prepare participating University of Maryland students for a career in this rapidly developing field. This program draws upon the considerable expertise in nanoscience at Maryland, in departments distributed among three schools: Engineering; Computer, Mathematics and Physical Sciences; and Chemistry and Life Sciences. Students take courses in Fabrication/Synthesis and Characterization, which emphasize the experimental side of NS&T, as well as Fundamental Science and Specialization Electives, which teach the underlying principles and directions, and include underlying theory and the motivations for NS&T. The minor is open to any student majoring in Engineering, Physics or Chemistry.

Completion of the program instills in students the broad perspective needed for nano, including understanding and experience in fabrication/synthesis of nanomaterials and structures, their characterization/measurement, the fundamental science underlying them, and their applications.

For more information see www.nanocenter.umd.edu/education/nano_minor/nano_minor.php or contact Director, Nano Minor Professor, Ray Phaneuf, MSE, or Education Coordinator, Nano Minor, Dr. Kathleen Hart, MSE.

Advising

Students choosing Materials Science and Engineering as their major should contact Dr. Kathleen Hart, Assistant Director of Student Services, Room 1113, Chemical and Nuclear Engineering Building, at 301-405-5989 or hart@umd.edu. Dr. Hart can direct students to their advisor: Professors Lloyd or Martinez-Miranda. Any questions about the program should be directed to Dr. Ray Phaneuf, Undergraduate Studies Director.

Undergraduate Research Experiences

The Department strongly supports undergraduate students who wish to pursue research opportunities. The student should discuss their interest with their advisor or with Dr. Kathleen Hart (Assistant Director, Student Services) or Professor R. Phaneuf (Undergraduate Program Director). See www.mse.umd.edu/undergrad/index.html.

Internships

The Department strongly encourages students to pursue internships as part of their undergraduate experience. They should discuss an internship with their advisor as they develop their academic plan. The Department will forward information about internships to our undergraduate students. Students may also receive information on internships from the A. James Clark Co-op and Career Services Center. See www.coop.eng.umd.edu.

Co-op Programs

The Materials Science and Engineering program works with the A. James Clark School of Engineering Cooperative Engineering education Program. For more information, students should speak with their advisor regarding their interest in a co-op experience and consult the College web page at www.coop.eng.umd.edu/

Student Societies and Professional Organizations

Undergraduate Societies
The Materials Engineering Society, or MatES, is a student society primarily for Materials Science and Engineering majors at the University of Maryland College Park. MatES is the University of Maryland's Materials Advantage Student Chapter. It includes recognition by several professional societies including ASM International, The Minerals, Metals, and Materials Society (TMS), and the American Ceramic Society (ACerS). More information is available on the on the student society web site at www.mse.umd.edu/mates/

Materials Research Society (MRS)
The Materials Research Society (MRS), a professional research society for the field has a student chapter in the Department. The chapter organizes student research presentations, invites prospective employers for discussions and collectively provides a forum for student-faculty interactions. More information is available by contacting Professor Salamanca-Riba at riba@umd.edu.

Alpha Sigma Mu
Alpha Sigma Mu is the International Professional Honor Society for Materials Science and Engineering. Students with outstanding scholarship are nominated for membership and are eligible to be nominated for scholarships. If you have any questions, contact Professor and Chair Robert Briber at rbriber@umd.edu.

Scholarships and Financial Assistance

The Office of Student Financial Aid (OSFA) administers all types of federal, state and institutional financial assistance programs and, in cooperation with other university offices, participates in the awarding of scholarships to deserving students. For information, visit: www.financialaid.umd.edu

MSE $1000 First Year Scholarships are available to outstanding students who are admitted to the University of Maryland and select MSE as their major. The First Year Scholarship is renewable for another year if the student meets certain benchmarks. The Department holds an open house in both the fall and spring semesters. Participants in these open houses may apply for a $2000 Top Terp scholarship. Other scholarships are available through the A. James Clark School of Engineering. There are also research internships available for students to work with faculty in the Department.

Awards and Recognition

Each year, the Department selects outstanding students for the following awards:

Chairman's Outstanding Senior Award

Outstanding Materials Student Service Award

Materials Science and Engineering Student Research Award

The professional materials oriented societies sponsor awards to recognize outstanding scholarship and undergraduate research.

ASM International www.asminternational.org/

The Minerals, Metals, and Materials Society (TMS) www.tms.org/TMSHome.html

American Ceramic Society (ACerS) www.ceramics.org/

Materials Research Society (MRS) www.mrs.org

All students enrolled in the Materials Science and Engineering program are encouraged to select a faculty advisor who in their junior and senior years will guide them towards nomination for these awards.

MATHEMATICS (MATH)

College of Computer, Mathematical and Physical Sciences
1117 Mathematics Building, 301-405-5053
www.math.umd.edu
Chair: J. Yorke (Dist Univ Prof)
Professors: J. Adams, S. Antman (Dist Univ Prof, Assoc Chair Faculty Affairs), J. Benedetto (Dist Teacher Scholar), C. Berenstein, M. Boyle (Assoc Chair, Undergraduate Program), M. Brin, J. Cohen, D. Dolgopyat, G. Dolzmann, P. Fitzpatrick, G. Forni, M. Freidlin (Dist Univ Prof), H. Glaz, W. Goldman (Dist Teacher Scholar), M. Grillakis, K. Grove, S. Gulick, S. Halperin (Dean), D. Hamilton, D. Healy, B. Hunt, M. Jakobson, R. Johnson, A. Kagan, V. Kaloshin (Brin Chair), B. Kedem, W. Kirwan (Chancellor), D. Kueker, M. Laskowski (Assoc Chair, Graduate Program), D. Lay (Dist Teacher Scholar), C. Levermore, R. Lipsman (Senior Assoc Dean), J-G. Liu, E. Lopez-Escobar, M. Machedon, J. Millson, R. Nochetto, S. Novikov (Dist Univ Prof), J. Rosenberg, J. Schafer, E. Slud, E. Tadmor (Dist Univ Prof), K. Trivisa, A. Tzavaras, L. Washington, R. Wentworth, P. Wolfe, S. Wolpert (Dist Teacher Scholar), G. Yang, J. Yorke (Dist Univ Prof, Dist Univ Prof Chair)
Associate Professors: R. Balan, S. Cerrai, W. Czaja, T. Haines, L. Koralov, D. Levy, D. Margetis, N. Ramachandran, H. Tamvakis, T. VonPetersdorff, C. Warner, H. Winkelnkemper
Assistant Professors: A. Mellet, K. Okoudjou, K. Prasanna
Lecturers: C. Cremins (Senior Lecturer), J. Daberkow, D. Franklin (Senior Lecturer), F. Gulick (Senior Lecturer), K. McLaren (Senior Lecturer), T. Pilachowski, J. Stone, C. Terpos, J. Wyss-Gallifent (Senior Lecturer)
Affiliate Professors: D. O'Leary, G. Stewart (Dist Univ Prof)
Adjunct Professors: M. Bhatia
Professors Emeriti: W. Adams, J. Alexander, J. Auslander, I. Babuska (Dist Univ Prof Emeritus), K. Berg (Assoc Prof Emeritus), J. Brace, J. Cooper, J. Dancis (Assoc Prof Emeritus), G. Ehrlich, R. Ellis, J. Fey, J. Goldhaber, R. Good, P. Green, M. Heins, G. Helzer (Assoc Prof Emeritus), R. Herb, J. Horvath, B. Hubbard, J. Hummel, R. Kellogg, H. King, A. Kleppner, E. Lehner, G. Lehner, N. Markley, U. Neri, F. Olver, J. Osborn, J. Owings, J. Sather (Assoc Prof Emeritus), D.

Schneider (Assoc Prof Emeritus), R. Syski, M. Zedek

The Major

The program in mathematics leads to a degree of Bachelor of Science in mathematics and offers students training in preparation for graduate work, teaching, and positions in government or industry. Mathematical training is integrated with computer use in several courses. Because a strong mathematical background is important in many fields, over a third of UMCP mathematics majors are double majors. Additional information on these topics and mathematics is available from the departmental website.

Program Objectives

The Department of Mathematics educates its majors in a broad range of modern mathematics while instilling in them a strong ability to solve problems, apply mathematics to other areas, and create rigorous mathematical arguments. The program prepares the majors to further their mathematical education in graduate school, or to teach at the secondary school level, or to work in government or business.

Program Learning Outcomes

1. Students will acquire problem-solving skills in a broad range of significant mathematics.
2. Students will gain an understanding of what constitutes mathematical thinking, including the ability to produce and judge the validity of rigorous mathematical arguments.
3. Students will be able to communicate mathematical ideas and arguments.
4. Students will be prepared to use mathematics in their future endeavors, not only in the discipline of mathematics, but also in other disciplines.

Academic Programs and Departmental Facilities

Combined B.S./M.A. Program in Mathematics

The Department of Mathematics offers a combined B.S./M.A. degree program for students with exceptional ability and interest in mathematics. Students enrolled in the Combined Degree Program may count up to 9 credits of coursework taken for their undergraduate degree toward the M.A. degree as well. For further information, please consult the Mathematics Department Web Page: www.math.umd.edu/undergraduate/majors.

Placement in Courses

The Department of Mathematics has a large offering to accommodate a great variety of backgrounds, interests, and abilities. The department permits students to take any course for which they have the appropriate background, regardless of formal course work. For example, students with a high school calculus course may be permitted to begin in the middle of the calculus sequence even if they do not have advanced standing. Students may obtain undergraduate credit for mathematics courses in any of the following ways: passing the appropriate CEEB Advanced Placement Examination, passing standardized CLEP examinations and through the department's Credit-by-Examination. Students are urged to consult with advisors from the Department of Mathematics to assist with proper placements.

Statistics and Probability and Applied Mathematics

Courses in statistics and probability and applied mathematics are offered by the Department of Mathematics. These courses are open to non-majors as well as majors, and carry credit in mathematics. Students wishing to concentrate in the above may do so by choosing an appropriate program under the Department of Mathematics.

Requirements for the Major

There are three tracks for the major: the traditional track, the secondary education track, and the statistics track. The secondary education track is for students seeking to become certified to teach mathematics at the secondary level. Each mathematics major must complete each required course with a grade of C or better.

TRADITIONAL TRACK

		Credits
	Introductory Sequence *	
MATH140	Calculus I	4
MATH141	Calculus II	4
MATH240	Introduction to Linear Algebra	4
MATH241	Calculus III	4
	One from:	
MATH246	Differential Equations for Scientists and Engineers	3
MATH341	Multivariable Calculus, Linear Algebra, Differential Equations	4
MATH414	Differential Equations	3
MATH436	Differential Geometry of Curves and Surfaces I	3
MATH462	Partial Differential Equations for Scientists and Engineers	3
	Eight MATH/AMSC/STAT courses at the 400-level or higher; must include:**	
MATH410	Advanced Calculus I***	3
	One From:	
MATH401	Applications of Linear Algebra	3
MATH403	Introduction to Abstract Algebra	3
MATH405	Linear Algebra	3
	One From:	
AMSC460	Computational Methods	3
AMSC466	Introduction to Numerical Analysis I	3

	Depth Requirement; a one year sequence chosen from the following:	
MATH 410/411	Advanced Calculus I and II	6
MATH 410/412	Advanced Calculus I / Adv Calc w/Applications	6
MATH 403/404	Introduction to Abstract Algebra / Field Theory	6
MATH 403/405	Introduction to Abstract Algebra / Linear Algebra	6
STAT 410/420	Introduction to Probability Theory / Introduction to Statistics	6
	Electives$^+$	
	400 level courses *(may not include: MATH 400, 461, 478, 480-484, STAT 464)*	
	One from:	
	(A student may be exempt from this requirement if (s)he can demonstrate adequate programming knowledge from prior course or work experience.)	
CMSC106	Introduction to C Programming	4
CMSC114	Computer Science I	4
CMSC122	Introduction to Computer Programming via the Web	3
CMSC131	Object-Oriented Programming I	4
CMSC132	Object-Oriented Programming II	4
ENAE202	Aerospace Computing	3
ENEE114	Programming Concepts for Engineering	4
PHYS165	Introduction to Programming in the Physical Sciences	3
	Supporting three-course sequence	
	Intended to broaden the student's mathematical experience. (Other sequences might be approved by the Undergraduate Office but they would have to make use of mathematical ideas, comparable to the sequences on this list.) Choose one sequence:	
	Sequence One	
PHYS161	General Physics: Mechanics and Particle Dynamics	3
PHYS260/261	General Physics: Vibration, Waves, Heat, Electricity and Magnetism/Lab	4
PHYS270/271	General Physics: Electrodynamics, Light, Relativity and Modern/Lab	4
	Sequence Two	
PHYS171	Introductory Physics: Mechanics and Relativity	3
PHYS272	Introductory Physics: Fields	3
PHYS273	Introductory Physics: Waves	3
	Sequence Three	
ENES102	Statics	3
PHYS161	General Physics: Mechanics and Particle Dynamics	3
ENES220	Mechanics of Materials	3
	Sequence Four	
CMSC132	Object-Oriented Programming II	4
CMSC212	Introduction to Low-Level Programming Concepts	4
CMSC250	Discrete Structures	4
	Sequence Five	
CHEM146/147	Principles of General Chemistry/Lab	4
CHEM237	Principles of Organic Chemistry I	4
CHEM247	Principles of Organic Chemistry II	4
	Sequence Six	
CHEM131/132	Chemistry I - Fundamentals of General Chemistry/Lab	4
CHEM231/232	Organic Chemistry I/Lab	4
CHEM241/242	Organic Chemistry II/Lab	4
	Sequence Seven	
ECON200	Principles of Micro-Economics	4

ECON201	Principles of Macro-Economics	4
ECON305	Intermediate Macroeconomic Theory and Policy, **OR**	3
ECON306	Intermediate Microeconomic Theory	3
	Sequence Eight	
BMGT 220	Principles of Accounting I	3
BMGT221	Principles of Accounting II	3
BMGT340	Business Finance	3

** Or honors sequence: MATH 340-341.Completion of MATH 340 satisfies the requirement for MATH 241; completion of MATH 340-341 satisfies the requirement for MATH 240-241-246.*

*** At least four courses must be taken at College Park.*

**** Most students are strongly encouraged to complete MATH 310 prior to attempting MATH 410.*

+ *Students with a strong interest in applied mathematics may, with the approval of the Undergraduate Office, substitute two courses (with strong mathematics content) from outside the Mathematics Department for one upper-level elective course.*

Secondary Education Track

		T **Credits**
	Introductory Sequence*	
MATH140	Calculus I	4
MATH141	Calculus II	4
MATH240	Introduction to Linear Algebra	4
MATH241	Calculus III	4
	One from:	
MATH246	Differential Equations for Scientists and Engineers	3
MATH341	Multivariable Calculus, Linear Algebra, Differential Equations	4
MATH401	Applications of Linear Algebra	3
MATH452	Introduction to Dynamics and Chaos	3
MATH462	Partial Differential Equations for Scientists and Engineers	3
AMSC460	Computational Methods	3
AMSC466	Introduction to Numerical Analysis I	3
	Seven MATH/AMSC/STAT courses at the 400-level or higher; must include:**	
MATH410	Advanced Calculus I***	3
MATH430	Euclidean and Non-Euclidean Geometries	3
	One from:	
MATH402	Algebraic Structures	3
MATH403	Introduction to Abstract Algebra	3
	One from:	3
STAT400	Applied Probability and Statistics I	3
STAT410	Introduction to Probability Theory	3
	One from:	
MATH406	Introduction to Number Theory	3
MATH445	Elementary Mathematical Logic	3
MATH446	Axiomatic Set Theory	3
MATH450	Logic for Computer Science	3
MATH456	Cryptology	3
MATH475	Combinatorics and Graph Theory	3
	Electives	
	400-level MATH/AMSC/STAT course *(may not include: MATH 400, 461, 478, 480-484, or STAT 464)*	
	One from:	
	(A student may be exempt from this requirement if (s)he can demonstrate adequate programming knowledge from prior course or work experience.)	
CMSC106	Introduction to C Programming	4
CMSC114	Computer Science I	4
CMSC122	Introduction to Computer Programming via the Web	3
CMSC131	Object-Oriented Programming I	4
CMSC132	Object-Oriented Programming II	4
ENAE202	Aerospace Computing	3
ENEE114	Programming Concepts for Engineering	4
PHYS165	Introduction to Programming in the Physical Sciences	3
	Education Requirements+	

EDCI450	Student Teaching Seminar in Secondary Education: Mathematics	1
EDCI451	Student Teaching in Secondary Schools: Mathematics	12
	Supporting Sequence	
	One of the following supporting two course sequences. These are intended to broaden the student's mathematical experience.	
	Sequence One	
CHEM131/132	Chemistry I - Fundamentals of General Chemistry/Lab	4
CHEM231/232	Organic Chemistry I/Lab	4
	Sequence Two	
PHYS161	General Physics: Mechanics and Particle Dynamics	3
PHYS260/261	General Physics: Vibration, Waves, Heat, Electricity and Magnetism/Lab	4
	Sequence Three	
BSCI105	Principles of Biology I	4
BSCI106	Principles of Biology II	4
	Sequence Four	
ASTR120	Introductory Astrophysics - Solar System	3
ASTR121	Introductory Astrophysics II - Stars and Beyond	4
	Sequence Five	
GEOL100/110	Physical Geology/Lab	4
GEOL322	Mineralogy, **or**	4
GEOL340	Geomorphology, **or**	4
GEOL341	Structural Geology, **or**	4
GEOL375	Introduction to the Blue Ocean	3
	Sequence Six	
ASOC200/201	Weather and Climate/Lab **and**	4
ASCOxxx	Any 400 level ASOC course	3

** Or honors sequence: MATH 340-341.Completion of MATH 340 satisfies the requirement for MATH 241; completion of MATH 340-341 satisfies the requirement for MATH 240-241-246.*

*** At least four courses must be taken at College Park.*

**** Most students are strongly encouraged to complete MATH 310 prior to attempting MATH 410.*

+ *The student-teaching pair EDCI 450-451 is 13 credits and has further prerequisites in the College of Education. In order to take these courses the student must be admitted into the College of Education. A student in the secondary education track of the mathematics major would normally be expected to receive a double major in Mathematics and Mathematics Education.*

Statistics Track

		Credits
	Introductory Sequence*	
MATH140	Calculus I	4
MATH141	Calculus II	4
MATH240	Introduction to Linear Algebra	4
MATH241	Calculus III	4
	One from:	
MATH246	Differential Equations for Scientists and Engineers	3
MATH341	Multivariable Calculus, Linear Algebra, Differential Equations	4
MATH414	Differential Equations	3
	Eight MATH/AMSC/STAT courses; must include:**	
MATH410	Advanced Calculus I***	3
STAT410	Introduction to Probability Theory	3
STAT430	Introduction to Statistical Computing and SAS	3
	One from:	
AMSC460	Computational Methods	3
AMSC466	Introduction to Numerical Analysis I	3
	One from:	
MATH401	Applications of Linear Algebra	3
MATH405	Linear Algebra	3
	One from:	3
STAT401	Applied Probability and Statistics II	3
STAT420	Introduction to Statistics	3
	Two additional courses from the following list:	
STAT4--	Any 400-level or higher STAT courses *(except STAT 464)*	
MATH411	Advanced Calculus II	3
MATH412	Advanced Calculus with Applications	3
MATH414	Differential Equations	3
MATH424	Introduction to the Mathematics of Finance	3
MATH464	Transform Methods for Scientists and Engineers	3
AMSC 477	Optimization	3
BIOM 402	Statistics for Human and Veterinary Medicine	3
	One from:	

(A student may be exempt from this requirement if (s)he can demonstrate adequate programming knowledge from prior course or work experience.)

CMSC106	Introduction to C Programming	4
CMSC114	Computer Science I	4
CMSC122	Introduction to Computer Programming via the Web	3
CMSC131	Object-Oriented Programming I	4
CMSC132	Object-Oriented Programming II	4
ENAE202	Aerospace Computing	3
ENEE114	Programming Concepts for Engineering	4
PHYS165	Introduction to Programming in the Physical Sciences	3

Supporting three-course sequence

Intended to broaden the student's mathematical experience. (Other sequences might be approved by the Undergraduate Office but they would have to make use of mathematical ideas comparable to the sequences on this list.) Choose one sequence.

Sequence One

PHYS161	General Physics: Mechanics and Particle Dynamics	3
PHYS260/261	General Physics: Vibration, Waves, Heat, Electricity and Magnetism/Lab	4
PHYS270/271	General Physics: Electrodynamics, Light, Relativity and Modern/Lab	4

Sequence Two

PHYS171	Introductory Physics: Mechanics and Relativity	3
PHYS272	Introductory Physics: Fields	3
PHYS273	Introductory Physics: Waves	3

Sequence Three

ENES102	Statics	3
PHYS161	General Physics: Mechanics and Particle Dynamics	3
ENES220	Mechanics of Materials	3

Sequence Four

CMSC132	Object-Oriented Programming II	4
CMSC212	Introduction to Low-Level Programming Concepts	4
CMSC250	Discrete Structures	4

Sequence Five

CHEM146/147	Principles of General Chemistry/Lab	4
CHEM237	Principles of Organic Chemistry I	4
CHEM247	Principles of Organic Chemistry II	4

Sequence Six

CHEM131/132	Chemistry I - Fundamentals of General Chemistry/Lab	4
CHEM231/232	Organic Chemistry I/Lab	4
CHEM241/242	Organic Chemistry II/Lab	4

Sequence Seven

ECON200	Principles of Micro-Economics	4
ECON201	Principles of Macro-Economics	4
ECON305	Intermediate Macroeconomic Theory and Policy, **OR**	3
ECON306	Intermediate Microeconomic Theory	3

Sequence Eight

BMGT 220	Principles of Accounting I	3
BMGT221	Principles of Accounting II	3
BMGT340	Business Finance	3

** Or honors sequence: MATH 340-341.Completion of MATH 340 satisfies the requirement for MATH 241; completion of MATH 340-341 satisfies the requirement for MATH 240-241-246.*

*** At least four courses must be taken at College Park.*

**** Most students are strongly encouraged to complete MATH 310 prior to attempting MATH 410.*

Other Requirements for the Major

AREAS OF STUDY

Within the Department of Mathematics there are a number of identifiable areas which students can pursue to suit their own goals and interests. They are briefly described below. Note that they do overlap and that students need not confine themselves to one of them.

1. Pure mathematics: The courses that clearly belong to this area are: MATH 402, 403, 404, 405, 406, 410, 411, 414, 430, 432, 436, 437, 445, 446, 452, 456, and STAT 410, 420. Students preparing for graduate school in mathematics should include MATH 403, 405, 410, 411 (or 412) and 463 (or 660) in their programs. MATH 432 (or 730) is also desirable. Other courses from the above list and graduate courses are also appropriate.

2. Secondary teaching: In addition to the courses required by the Secondary Education Track, the following courses are particularly suited for students preparing to teach: MATH 401, 406, 445, 470 and 475.

EDHD 413, EDHD 426, EDPL 301, EDCI 463, EDCI 455, EDCI 355, EDCI 457, EDCI 450, EDCI 451, and EDCI 474 are required for certification. Before registering for EDCI 455, EDCI 355, EDCI 450, EDCI 451, or EDCI 474, students must apply for and be admitted to the College of Education's Secondary Education Program. For more information, see the College of Education website: www.education.umd.edu/studentinfo.

3. Statistics: For a student with a Bachelor's degree seeking work requiring some statistical background, the minimal program is STAT 400-401. To work primarily as a statistician, one should combine STAT 400-401 with STAT 430 and at least one more statistics course, most suitably, STAT 440. A stronger sequence is

STAT 410, 420, 430. This offers a better understanding and wider knowledge of statistics and is a general purpose program (i.e., does not specify one area of application). For economics applications, MATH 424, STAT 400, 401, 430, 440 should be considered. To prepare for graduate work, STAT 410 and 420 give the best background, with STAT 430, 440 added at some later stage.

4. Computational mathematics: There are a number of math courses which emphasize the computational aspects of mathematics including the use of the computer. They are AMSC 460, 466, MATH 431, 456, 475 and STAT 430. Students interested in this area should take the CMSC supporting sequence as soon as possible.

5. Applied mathematics: The courses which lead most rapidly to applications are the courses listed above in 3 and 4 and MATH 401, 412, 414, 431, 436, 462, 463, and 464. A student interested in applied mathematics should obtain, in addition to a solid training in mathematics, a good knowledge of at least one area in which mathematics is currently being applied. Concentration in this area is good preparation for employment in government and industry or for graduate study in applied mathematics.

Requirements for the Minor

The Department of Mathematics offers Minors in the following areas:

Actuarial Mathematics
Mathematics
Statistics

A Minor offers a structured program of study outside a students major. See www.math.umd.edu/undergraduate/opportunities for detailed information.

Advising

Advising for math majors is mandatory. Students are required to sign up for an advising appointment at the math undergraduate office window (1117 Mathematics Building), beginning the week before early registration. Students who have been away more than two years may find that due to curriculum changes the courses they have taken may no longer be adequate preparation for the courses required to complete the major. Students in this situation must meet with the Department Advisor to make appropriate plans.

Undergraduate Research Experiences

There are a variety of undergraduate research opportunities in mathematics at Maryland. For detailed information see www.math.umd.edu/undergraduate/opportunities/

Honors Program

The Mathematics Honors Program is designed for students showing exceptional ability and interest in mathematics. Its aim is to give a student the best possible mathematics education. Participants are selected by the Departmental Honors Committee during the first semester of their junior year. A precise statement of the requirements may be found at www.math.umd.edu/undergraduate/opportunities

The department also offers a special department honors sequence MATH 340-341 for promising freshmen with a strong mathematical background (including calculus). Enrollment in the sequence is normally by invitation but any interested student may apply to the Mathematics Department for admission. Participants in the University Honors Program may also enroll in special honors sections of the lower-level mathematics courses (MATH 140H, 141H, 240H, 241H, 246H). Students in Math 340-341 and the special honors sections need not be math majors.

The mathematics departmental honors sequence and the University Honors Program are distinct, and enrollment in one does not imply acceptance in the other.

Awards and Recognition

Aaron Strauss Scholarships: One is awarded each spring to an outstanding non-graduating math major. The recipient receives full remission of (in-state) tuition for the following academic year. Applications may be obtained early in the previous spring semester from the Mathematics Undergraduate Office, 1117 Mathematics Building.

Aziz Mathematics Scholarship: The Aziz scholarship is the department's highest award of mathematical excellence for a non-graduating math major. When eligible, the receipient receives a monetary award to cover in-state tuition in the following academic year.

Dan Sweet Scholarship: A one-semester stipend awarded to a math major on the basis of merit.

Edgar Krahn Scholarship: A monetary award is made on the basis of performance in the Maryland High School Mathematics Competition.

Euclid Teaching Assistantship: This is an opportunity for a math major planning to teach in secondary or middle school to work as an undergraduate TA. Apply in the spring for the following year

Higginbotham Prize: A monetary award is made to an outstanding junior math major in the spring.

Milton Abramowitz Award: A monetary award is made to an outstanding junior or senior math major in the spring.

Outstanding Senior Award: A monetary award is made to the outstanding graduating math major.

Secondary Education-Mathematics (SEM) Scholarship: Up to two are awarded in the spring to Secondary Education-Mathematics double majors.

Strauss Teaching Assistantship: This is an opportunity for outstanding math majors to work as an undergraduate TA. Apply in the spring for the following year.

For further information on awards, consult www.math.umd.edu/undergraduate/opportunities

MEASUREMENT, STATISTICS AND EVALUATION (EDMS)

College of Education
1230 Benjamin Building, 301-405-3624
www.education.umd.edu/EDMS
Chair: G. Hancock
Professors: C. Dayton, R. Lissitz, G. Macready, R. Mislevy
Assistant Professors: J. Harring, H. Jiao, A. Rupp
Adjunct Associate Professors: K. Alvestad

The Major

For Advanced Undergraduates

The Department of Measurement, Statistics and Evaluation in the College of Education offers a 5th Year MA program for undergraduates interested in quantitative methods. The purpose of this program is to allow highly motivated undergraduates the opportunity to develop their skills in quantitative methods. Students complete a BA (or BS) in their chosen major area along with an MA in Measurement, Statistics and Evaluation in just five years. Courses offered by this department may be found under the following acronym: EDMS.

Scholarships and Financial Assistance

The Office of Student Financial Aid (OSFA) administers all types of federal, state and institutional financial assistance programs and, in cooperation with other university offices, participates in the awarding of scholarships to deserving students. For information, visit: www.financialaid.umd.edu

Mathematical Statistics Program (STAT)

College of Computer, Mathematical and Physical Sciences
1107 Mathematics Building, 301-405-5061
www.stat.umd.edu
Director: P. Smith (Assoc Prof)
Professors: M. Freidlin, A. Kagan, B. Kedem, J. Liu (IPST), E. Slud, G. Yang
Professors Emeriti: R. Syski (Prof Emeritus)

The Major

The Mathematical Statistics Program (within the Department of Mathematics) offers a variety of undergraduate courses to students in all disciplines as well as a graduate program for students concentrating in the study of Statistics, Probability and their application in real world problems.

In addition to an undergraduate program emphasizing Statistics that is available to majors in Mathematics, there are two minors in Statistics offered through the Department of Mathematics.

Requirements for the Minor

Minor in Statistics - for information contact Professor Paul Smith (pjs@math.umd.edu)

Minor in Actuarial Mathematics - for information contact Professor Eric Slud (evs@math.umd.edu)

Each of these Minors offers a structured program of 16 credits of study outside a students major. For more information, see www.math.umd.edu/undergraduate/opportunities/minors.shtml

MECHANICAL ENGINEERING (ENME)

A. James Clark School of Engineering
2181 Engineering Classroom Building, 301-405-2410
www.enme.umd.edu
Chair: A. Bar-Cohen (Dist Univ Prof Chair)
Director: S. Ainane (Director, Adjunct Assoc Prof)
Professors: S. Azarm, B. Balachandran (Asso. Chair), D. Barker, A. Baz, P. Bernard, A. Christou, A. Dasgupta, D. DeVoe, J. Duncan, A. Gupta, S. Gupta (Affil Assoc Prof), B. Han, J. Kim, M. Modarres, A. Mosleh, C. Mote (Pres UMCP), M. Ohadi, M. Pecht, R. Radermacher, P. Sandborn (Aff Asst Prof), M. Zachariah (Affiliate Prof)
Associate Professors: J. Bernstein (Affil Assoc Prof), D. Bigio, H. Bruck, M. Cukier, J. Desai, J. Herrmann, G. Jackson, K. Kiger, F. McCluskey, L. Schmidt, T. Shih, E. Smela (Affil Assoc Prof), B. Yang, G. Zhang
Assistant Professors: S. Bergbreiter (Asst Prof), N. Chopra (Asst Prof), T. Li, S. Solares, B. Youn (Asst Prof), M. Yu (Aff Asst Prof)
Lecturers: H. Haslach (Senior Lecturer), C. Thamire (Senior Lecturer)
Adjunct Associate Professors: G. Schultz
Professors Emeriti: D. Anand, R. Armstrong, B. Berger, F. Buckley, P. Cunniff, J. Dally, G. Dieter, D. Holloway, J. Kirk, E. Magrab, C. Marks (Prof Emeritus), R. Sanford, C. Sayre, M. Talaat, W. Walston (Assoc Prof Emeritus), J. Yang

The Major

The mechanical engineering major prepares students for the challenges of today and the future. The curriculum is one of the most up-to-date, forward-looking programs in the country. Students become involved with real-world engineering projects early on through extensive interaction with engineers from industry. This interaction continues throughout the curriculum. Coursework is fully integrated to provide a seamless undergraduate experience. Graduates possess the skills and knowledge base necessary for success in today's marketplace, and the education necessary to adapt and succeed as technology continues to change.

The mechanical engineer of today faces a more extensive range of critical problems than ever before. Graduates must be skilled not only in the traditional fundamentals of mechanical engineering such as solid mechanics, fluid mechanics, thermodynamics, heat transfer, materials engineering, electronic instrumentation and measurements, controls and design, but also in new/emerging areas such as mechatronics, smart structures, electronic packaging, communication, information systems, total quality management, reliability and electromechanical systems. Most topics require extensive use of modern computing hardware and software. Students are taught to make use of this capability and to make sound engineering judgments while analyzing seemingly unmanageable amounts of information. Attributes such as teamwork, ethics, social awareness, and leadership are emphasized in many courses.

Electives taken during the senior year prepare graduates to choose from a number of career paths, or to select a broad-based group of electives. All students work on projects throughout their program, many of which teach the advantages of teamwork and the skills required for a team to succeed. Individual projects provide the opportunity for sometimes far-out creative thinking. Students work closely with individual faculty members who serve as teachers, advisors, and mentors. Many undergraduate students have the opportunity to serve as Research Fellows and/or Teaching Fellows in the department.

Program Objectives

1. The program will prepare students for successful engineering careers.

2. Students will learn the fundamentals of mathematics, physical sciences, and engineering sciences and demonstrate the applications of this knowledge to Mechanical Engineering.

3. Students will learn through course sequences focused on specific, relevant mechanical engineering careers.

4. The program will provide students with practical design experiences through partnerships with industry.

5. The program will continue to raise the expectations of all constituencies, to attract a wide variety of excellent students, and to be a nationally recognized engineering program.

Program Learning Outcomes

a. ability to apply knowledge of math, engineering, and science
b. ability to analyze and interpret data
c. ability to design and conduct experiments
d. ability to design system, component or process to meet needs
e. ability to function on multi-disciplinary teams
f. ability to identify, formulate, and solve engineering problems
g. understanding of professional and ethical responsibility
h. ability to communicate effectively
i. broad education
j. recognition of need and ability to engage in life-long learning
k. knowledge of contemporary issues
l. ability to use techniques, skills, and tools in engineering practice

Admission to the Major

Admission requirements are identical to those set by the Clark School of Engineering. See Clark School of Engineering under Colleges and Schools on this site.

Requirements for the Major

		Credits	**Credits**
	Freshman Year	**First Sem**	**Second Sem**
MATH140	Calculus I	4	
MATH141	Calculus II		4
CHEM135	General Chemistry for Engineers	3	
PHYS161	General Physics		3
ENGL101	Introduction to Writing	3	
ENES100	Introduction to Engineering Design *(**can be taken 1st or 2nd semester*)	3**	
ENES102	Statics (***can be taken 1st or 2nd semester)*		3**
CORE	CORE Requirements		6
	Total Credits	13	16

		Credits	**Credits**
	Sophomore Year	**First Sem**	**Second Sem**
MATH241	Calculus III	4	
MATH246	Differential Equations		3
PHYS260/261	General Physics	4	
PHYS270/271	General Physics		4
ENES220	Mechanics of Materials	3	
ENES221	Dynamics	3	
ENME232	Thermodynamics		3
ENME271	Introduction to MATLAB		3
CORE	CORE Requirements	3	3
	Total Credits	17	16

		Credits	**Credits**
	Junior Year	**First Sem**	**Second Sem**
ENME331	Fluid Mechanics	3	
ENME332	Transfer Processes		3
ENME350	Electronics and Instrumentation I	3	

ENME351	Electronics and Instrumentation II		3
ENME361	Vibration, Controls, & Optimization I		3
ENME371	Product Engineering and Manufacturing		3
ENME382	Engineering Materials and Manufacturing Processes	3	
ENME392	Statistical Methods for Product and Process Development	3	
ENGL393	Technical Writing	3	3
CORE	CORE Requirements	3	
	Total Credits	15	15

		Credits	**Credits**
	Senior Year	**First Sem**	**Second Sem**
ENME462	Vibration, Controls, & Optimization II		3
ENME472	Integrated Product and Process Development II	3	
ELECTIVES	Technical Electives	9	9
CORE	CORE Requirements	3	3
	Total Credits	15	15

A minimum of 120 credits are required for a degree. The schedule above assumes one CORE course also satisfies the CORE Cultural Diversity requirement.

Sample Elective Topics
Air Pollution &Waste Technology
Bio-Fluids
Bio-Inspired Robotics
Computer-Aided Design & Manufacturing
Packaging of Electronic Systems
Energy Conversion
Engineering Management
Environmental Engineering
Flexible Macro-electronics
Automotive Design
Robotics
Manufacturing
Medical Robotics
Fiber Optics
Micro-Electro-Mechanical Systems

Advising

All mechanical engineering students are required to meet with an advisor during registration. Contact the Undergraduate Advising Office, 2186 Engineering Classroom Building.

Co-op Programs

Participation in the Cooperative Education Program is encouraged. See Clark School of Engineering under Colleges and Schools on this site.

Honors Program

The Honors Program is administered through the Clark School of Engineering. Individual honors and awards are presented based on academic excellence and extracurricular activities.

Student Societies and Professional Organizations

Student chapters of professional societies include the American Society of Mechanical Engineers, the Society of Automotive Engineers, the Society of Manufacturing Engineers, and the American Society of Heating, Refrigeration and Air Conditioning Engineers. The mechanical engineering honor society is Pi Tau Sigma. Information regarding these societies may be obtained at 2186 Engineering Classroom Building.

Scholarships and Financial Assistance

A very limited amount of financial aid is available. Information may be obtained in the Undergraduate Advising Office

Meteorology

See Atmospheric and Oceanic Sciences elsewhere in Chapter 7.

Microbiology

Specialization courses in microbiology are offered by the Departments of Biological Sciences and Cell Biology and Molecular Genetics in the College of Chemical and Life Sciences.

MUSIC, SCHOOL OF (MUSC)

College of Arts and Humanities
2110 Clarice Smith Performing Arts Center, 301-405-5549
www.music.umd.edu
Chair: R. Gibson (Director)
Director: L. DeBoy (Assoc. Dir.)
Professors: C. Balthrop, D. Cossa, T. DeLio, L. Dedova, E. Elsing, G. Fischbach, B. Haggh-Huglo, L. Mabbs, E. Maclary, L. Major, W. Montgomery, L. Moss, C. Page, R. Provine, S. Rodriguez, D. Salness, R. Sloan, C. Vadala, R. Wexler, J. Witzleben, D. Ziegler
Associate Professors: S. Davis, J. Fry, P. Gekker, B. Gowen, D. Hanninen, M. Hewitt, M. Hill, R. King, F. Loup, G. Miller, J. Ross, L. Sparks, J. Stern, M. Votta, M. Wilson
Assistant Professors: B. Carter, O. Haldey
Instructors: J. Montgomery (Prof Of Practice)
Lecturers: A. Adams, E. Adkins, D. Alvi, F. Ames, T. Baldwin, S. Beicken, G. Cavallaro, P. Cigan, A. DiClemente, P. Diamond, C. Dudley, S. Dumaine, M. Edwards, W. Evans, D. Foster, E. Gero, M. Guilford (Assoc Art-in-Res), S. Heineman (Assoc Art-In-Res), S. Hendrickson, J. Holly, J. Huling, N. Jacobson, M. Johnson, D. Jones, P. Kellner, A. Kouyate, G. Kunkel, R. Layton, D. Lederer, J. Lee, W. Matthews, R. McReynolds, C. Mulcahy, K. Murdock, K. Okamoto, N. Olcott, R. Oppelt, E. Osterloh, J. Ozment, B. Patterson, L. Pilzer, B. Ramirez, M. Randall, C. Redd, B. Sandstrom, K. Slowik, R. Smith, I. Suadin, J. Tafoya, D. Teie, K. Trahan, D. Underwood, M. Volchok, E. Walters, S. Wang, V. Weil, G. Wilson, A. Wiltz, D. Zimmerman
Adjunct Professors: M. Huglo
Professors Emeriti: R. Folstrom, E. Garvey, E. Head, E. Helm, R. Johnson, J. Pacholczyk, P. Traver, E. Urban, J. Wakefield
Visiting Faculty: E. Bates, J. Dalley, M. Mills, A. Steinhardt, M. Tree, P. Wiley

Program Objectives

The objectives of the School of Music are (1) to provide professional musical training based on a foundation in the liberal arts; (2) to help the general student develop sound critical judgment and discriminating taste in the performance and literature of music; (3) to prepare the student for graduate work in the field; and (4) to prepare the student to teach music in the public schools.

Academic Programs and Departmental Facilities

With the above objectives in mind, the School of Music offers the following three bachelor degrees: (a) the Bachelor of Music, with majors in theory, composition, and music performance, (b) the Bachelor of Arts, with a major in music and (c) Bachelor of Music Education in conjunction with and certification from the College of Education.

The UM School of Music is located in the Clarice Smith Performing Arts Center, a 318,000 square foot campus facility dedicated to Music, Theatre and Dance. Completed in 2001, the Center includes six state-of-the-art performance venues, the Michelle Smith Performing Arts Library, and specialized classroom and rehearsal spaces, all under one roof.

Admission to the Major

Admission to all undergraduate music major degree programs (B.M., B.A., and B.M.E.) is based on a required performance audition before a faculty committee. Audition dates and requirements are available at www.music.umd.edu.

Placement in Courses

Required music courses and private lessons are open to music majors who have completed the specified prerequisites, or their equivalents. Lessons are also available for qualified non-music majors, if teacher, time and facilities permit. All ensembles in the School of Music are open by audition to any student.

Requirements for the Major

Designed for qualified students with extensive pre-college training and potential for successful careers in professional music. B.M. degree programs are offered in the following: Piano, Voice, Violin, Viola, Cello, Bass, Flute, Oboe, Clarinet, Bassoon, Saxophone, Horn, Trumpet, Trombone, Tuba, Euphonium, Percussion, Harp, Composition, and Theory.

The College of Arts and Humanities requirements are waived for students majoring in B.M. Degree programs.

Bachelor of Music Requirements:

In addition to CORE courses and music courses specific to each instrument or program listed above, B.M. students generally complete the following:

- 8 semesters of private lessons (Senior Recital in final semester)
- 8 semesters of large ensemble participation
- 8 semesters of small ensemble participation
- 4 semesters of music theory
- 3 semesters of music history
- 2 semesters of class piano (except piano majors)
- 1 semester of form and analysis
- 1 semester of conducting
- 1 semester of music literature
- 1 semester of music pedagogy
- 1 semester of world music
- 3 credits of music electives

The B.M. programs vary according to instrument or emphasis. Please visit www.music.umd.edu for specific requirements.

The Bachelor of Arts Degree

Designed for qualified students whose interests include a broader liberal arts experience. The College of Arts and Humanities requirement of 45 upper level credits and a foreign language to the intermediate level apply to all B.A. students. B.A. degree programs are offered in the following: Piano, Voice, Violin, Viola, Cello, Bass, Flute, Oboe, Clarinet, Bassoon, Saxophone, Horn, Trumpet, Trombone, Tuba, Euphonium, Percussion, Harp and Jazz Studies.

Bachelor of Arts in Music Requirements:

In addition to CORE courses and music courses specific to each instrument or program listed above, B.A. students generally complete the following:

- 5 semesters of private lessons (Senior Recital in final semester)
- 5 semesters of ensemble participation
- 4 semesters of music theory
- 3 semesters of music history
- 2 semesters of class piano (except piano majors)

- 1 semester of form and analysis
- 6 credits of music electives

The B.A. programs vary according to instrument or emphasis. Contact the School of Music for specific requirements.

The Bachelor of Music Education

Designed for qualified students preparing for careers in K-12 teaching of music, the Bachelor of Music Education (BME) offered by the College of Arts and Humanities carries with it a teaching certification from the College of Education. BME degrees are offered with concentrations in either Instrumental Music Education or Choral-General Music Education. The requirements for a BME are similar to the BM program plus approximately 48 credits in music education. Contact the School of Music for specific requirements.

In addition to CORE requirements and the BM requirements above, Music Education students generally complete the following (for a total of 134-140 credits):

- 26 credits of MUED (class instruments and field experience)
- 6 credits of EDHD (Human Development)
- 3 credits of EDPL (Policy and Leadership)
- 3 credits of EDCI 463 (Curriculum and Instruction)
- 4 - 6 credits MUED 484 (Elementary Student Teaching)
- 4 - 6 credits MUED 494 (Secondary Student Teaching)

Requirements for the Minor

Music Performance Minor

Eighteen credit hours consisting of the following:

- Four semesters of applied lessons (MUSP 302, 303, 402, 403)
- Four semesters of ensemble (chosen from MUSC 129, 229, 329)
- MUSC 130 Survey of Music Literature
- MUSC 140 Fundamentals of Music

Admission to the minor in music performance is based on a required performance audition before a faculty committee. Audition dates and requirements are available from the School of Music office.

Students who fulfill Minor requirements will receive a Minor on the official transcript. Please contact the School of Music Office for more information.

Advising

Departmental advising is mandatory for all music majors every semester. Please visit. www.music.umd.edu to find your appropriate advisor.

Student Societies and Professional Organizations

Sigma Alpha Iota International Music Fraternity
Kappa Kappa Psi National Honorary Band Fraternity
Tau Beta Sigma National Honorary Band Sorority
The National Association for Music Education (MENC)

Scholarships and Financial Assistance

The School of Music offers merit-based scholarships upon a student's acceptance into the program, based on the audition.

Natural Resources Management

The Natural Resources Management major has been revised and is now a concentration within the major Environmental Science and Technology. Please see Environmental Science and Technology for information about this concentration and related coursework.

Natural Resource Sciences (NRSC)

Horticulture and Crop Production, Landscape Management, Plant Science, Turf and Golf Course Management, and Urban Forestry Areas of Concentration formerly under the NRSC major are now listed under the Plant Sciences major.

Conservation of Soil, Water, and Environment Concentration and Soil Science Minor formerly under the NRSC major are now part of the Environmental Science and Technology (ENST) department. Please see Environmental Science and Technology for soils related major, minor, and coursework.

Nutrition and Food Science (NFSC)

College of Agriculture and Natural Resources
0112 Skinner Building, 301-405-4520
www.nfsc.umd.edu
Chair: M. Parish
Director: N. Brenowitz Katz (Undergraduate Dietetics Program), P. McShane (Dietetic Internship), M. Mehta-Gupta (Ext Assoc)
Professors: G. Bean, T. Castonguay, D. Lei, J. Meng, M. Parish (Chair), C. Wei (Dean of AGNR)
Associate Professors: R. Jackson, M. Kantor, Y. Lo, N. Sahyoun, L. Yu
Assistant Professors: W. Cheng (Asst Prof)
Lecturers: N. Brenowitz Katz (Dietetics Program Director)
Professors Emeriti: R. Ahrens, P. Moser-Veillon, D. Schlimme, R. Wiley

Admission to the Major

The majors in Nutrition and Food Science are not limited enrollment programs. Students may either declare a major in the department at the time of application or transfer into the majors at any time thereafter. If interested in transferring into a major in NFSC, please contact the departmental office and ask to speak with an advisor.

Requirements for the Major

The department offers three areas of emphasis: dietetics, food science, and nutritional science. Each program provides for competencies in several areas of work; however, each option is designed specifically for certain professional careers.

The Dietetics major develops an understanding and competency in food, nutrition, dietetics management, clinical nutritional care, nutrition education, and community nutrition. The dietetics program is approved by the Commission on Accreditation for Dietetics Education, and qualifies students, after completion of a post-baccalaureate internship, to sit for the national exam to become a registered dietitian.

The Food Science major is concerned with the application of the fundamental principles of the physical, biological, and behavioral sciences and engineering to understand the complex and heterogeneous materials recognized as food. The food science program is approved by the Institute of Food Technologists and prepares students for careers in food industry and food safety.

The Nutritional Science major emphasizes the physical and biological sciences in relation to nutrition and the development of laboratory skills in these areas. Students in this major frequently elect to go on to graduate or medical school.

Grades. All students are required to earn a grade of C or better in courses applied toward satisfaction of the major. This includes all required courses with a prefix of NFSC, as well as certain required courses in supporting fields. A list of these courses for each program may be obtained from the department office.

Advising

Department advising is mandatory each semester. When planning a course of study, students must consult the Undergraduate Catalog for the year they entered the program and also see an appropriate departmental advisor. Information on advising may be obtained by calling the department office, 301-405-4520.

Student Societies and Professional Organizations

The NFSC Department has two active undergraduate clubs: the Food and Nutrition (FAN) club and the Food Science club, which sponsor outreach activities and speakers on career-related topics, and participate in a variety of social activities. Call 301-405-4520 for more information.

Operations Management

For information, see Decision, Operations and Information Technologies elsewhere in Chapter 7.

Other For-Credit Programs

Air Force Reserve Officer Training Corps Program (AFROTC)

2126 Cole Student Activities Building, 301-314-3242
www.afrotc.umd.edu
Director: Colonel Robert E. Pecoraro

The Air Force Reserve Officer Training Corps (AFROTC) provides students the opportunity to earn a commission as a second lieutenant in the United States Air Force while completing their undergraduate degree.

For information, see AFROTC under the Office of Undergraduate Studies section in Chapter 6.

Army Reserve Officer Training Corps Program (ROTC)

1150 Cole Student Activities Building, 301-314-5819
www.armyrotc.umd.edu
armyrotc@umd.edu

The Army Reserve Officer Training Corps offers students the opportunity to earn a commission as a Second Lieutenant in the United States Army (Active, Reserve, or National Guard) while completing their undergraduate degree.

For more information, see Officer of Undergraduate Studies section in Chapter 6.

College Park Scholars Program (CPSP)

1125 Cumberland Hall, 301-314-CPSP (2777)
www.scholars.umd.edu
Executive Director: Greig Stewart

College Park Scholars is a class of interdisciplinary, two-year living/learning programs in which academically and creatively talented freshmen and sophomores explore interests that enhance, or complement, their academic major.

Admission to College Park Scholars is selective and by invitation. For more information, see College Park Scholars in the Office of Undergraduate Studies section of Chapter 6.

Gemstone

0102 Ellicott Hall, 301-405-8047
www.gemstone.umd.edu
Director: Dr. James Wallace

Gemstone is a four-year program with students from many different majors and with a variety of interests. They have a unique opportunity to participate in a program involving special GEMS courses, but most importantly as members of undergraduate interdisciplinary research teams. Under the guidance of faculty mentors, Gemstone students carry out their team research on problems that often, but not exclusively, involve science and/or technology. However, rather than merely considering these problems from a technical point of view, Gemstone research projects take into consideration history, ethics, politics, sociology, psychology and business among other perspectives. Thus, we are eager to have students from all majors at the university participate in these many faceted projects. Some of the topics that current Gemstone teams are working on include: prevalence of antibiotic resistance in meat products, carbon sequestration, medical uses of electromyography, the effects of pollution on fish reproduction, improving hospital emergency room efficiency and effectiveness, and creating a multiplayer online game to assist ESOL students learn English.

Students in the Gemstone Program select their research topics during their freshman year through a discussion-based process led by upper class Gemstone students. Team research begins in earnest at the beginning of the sophomore year and continues into the senior year when each team writes a team thesis and then defends it in front of a distinguished panel made up of individuals from academia, industry, and government. Students who successfully complete the Gemstone Program receive the Gemstone Citation, which appears on their transcript.

What Gemstone provides participants is the experience of learning to do original research with a team of high achieving students under the supervision of a faculty mentor. It also makes opportunities available for students to develop leadership and citizenship qualities. Less tangible but of equal importance, the Program exists as a living-learning environment in which its students are supported by the Gemstone staff, mentors and their fellow students in both their academic endeavors and some social activities.

University Honors Program

Anne Arundel Hall, 301-405-6771
www.honors.umd.edu
honors@umd.edu

Director: Dr. William Dorland

The University Honors Program offers special educational opportunities and resources to students with exceptional academic talents. Admission is by invitation. Honors seminars offer small class size (capped at 20 students) and academic experiences characterized by active participation, intensive writing, and outstanding faculty who encourage critical thinking and innovation.

For more information, see Office of Undergraduate Studies in Chapter 6.

Persian Studies (PERS)

College of Arts and Humanities
1220 Jiménez Hall, 301-405-1891
www.persian.umd.edu
persianstudies@umd.edu
:

The Major

The 36-credit major in Persian Studies (12 courses) will provide students with a solid background in linguistic, literary, and cultural aspects of the study of Persian, inclusive of the cultures of Iran, Afghanistan, Persian-speaking Central Asia, and the Persian diaspora. Students will work toward competence in speaking, reading, writing, and listening; students will study the evolution of Iranian and Persianate cultures in their diverse perspectives, practices, and products. They will become conversant with the contemporary political and daily life of Persian-speaking peoples, with cultural comparison implicit throughout their 4 years.

The B.A. in Persian Studies prepares students for a range of professional opportunities, including careers in government, education, the arts, business, and communication. We expect that many undergraduates will choose to double major or do a double degree in Persian and another subject, including arts and humanities majors, business, computer science, engineering, and journalism.

Requirements for the Major

All students planning to pursue the Major in Persian Studies should contact the undergraduate advisor for Persian, who will be responsible for placement, oversight, and record keeping. A grade of 2.0 or better is required in all courses.

A. Prerequisites - 8 credits.
Note: There are no prerequisites for students with equivalent knowledge.

PERS101	Elementary Persian I	4 credits
PERS102	Elementary Persian II	4 credits

COURSES REQUIRED FOR MAJOR
***Note** - in cases where a student has equivalent knowledge, required language-focus credits are replaced in consultation with UG advisor. This may include courses in Arabic for those students who intend to study Persian literature in Persian, as Arabic is integral to the history of Persian literature.*

B. CORE Sequence - 18 credits
Note: All prerequisites imply "or equivalent knowledge."

PERS201	Intermediate Persian I (prereq 102)	3 credits
PERS211	Intermediate Conversation (co-req 201)	3 credits
PERS202	Intermediate Persian II (prereq 201/211)	3 credits
PERS212	Intermediate Reading (co-req 202)	3 credits
PERS301	Advanced Perisan I (prereq 202/212)	3 credits
PERS302	Advanced Persian II (prereq 301)	3 credits

C. Upper Level Electives in Persian - 6 credits

PERS311	Persian Media (pre-coreq 301)
PERS312	Iranian Culture (prereq 301)
PERS401	Persian Composition (prereq 302)

PERS402	Persian Translation (prereq 302)
PERS411	Readings in Modern Iranian History and Culture (prereq 302)
PERS412	Language and Identity (prereq 302)
PERS452	Modern Persian Literature: A Survey (prereq 302)
PERS453	Classical Persian Literature: A Survey (prereq: 302 and 6 credits Arabic)
PERS498	Special Topics in Persian Studies
PERS499	Special Topics in Persian Literature

D. Electives in English - up to 12 credits; no prerequisites

PERS250	Contemporary Iranian Arts
PERS251	Modern Iran
PERS283	Iranian Cinema
PERS353	Iranian Life in Literature and Film
PERS371	Introduction to Persian Literature in Translation
PERS372	The History of Persian
PERS441	Islam in Iran

Courses in Middle Eastern Studies taught in English outside the Department may be substituted on approval of the Undergraduate Advisor.

E. Supporting Area - 9 credits

Students must take 9 upper-level credits in a single area of study outside Persian Studies as a complement to their major. Their plan should be cleared with the Undergraduate advisor upon declaring major. Double majors and minors fulfill this requirement.

PHILOSOPHY (PHIL)

College of Arts and Humanities
1125A Skinner Building, 301-405-5689
www.philosophy.umd.edu
lgilman@umd.edu
Chair: J. Horty (Professor)
Professors: J. Bub (Distinguished University Professor), P. Carruthers, L. Darden (Distinguished Scholar Teacher), P. Greenspan, J. Levinson (Distinguished University Professor), C. Manekin, C. Morris, P. Pietroski (Distinguished Scholar Teacher), G. Rey, L. Svenonius
Associate Professors: S. Dwyer, M. Frisch, S. Kerstein, M. Morreau, A. Stairs
Assistant Professors: E. Eaker, D. Moller, R. Singpurwalla
Lecturers: S. Bilek, D. Blair, M. Tetzlaff
Affiliate Professors: A. Levine, X. Li, M. Sagoff, J. Segal, R. Wachbroit, D. Wasserman
Adjunct Professors: P. Levine, J. Mattingly, R. Rynasiewicz, K. Schaffner, M. Silberstein
Professors Emeriti: J. Brown, C. Cherniak, R. Martin, S. Odell (Assoc Prof), A. Pasch, F. Suppe

The Major

The study of philosophy develops students' reasoning and expository skills and increases their understanding of the foundations of human knowledge and value. The department views philosophy as an activity rather than a body of doctrine and students can expect to receive training in clear thinking, inventive synthesis, and precise expression. For some, this will serve as preparation for graduate studies in philosophy. However, philosophical skills are useful in professions such as law, medicine, government, business management, and in any field that demands intellectual rigor. The department offers a wide range of courses, including several that deal with the philosophy of various disciplines outside philosophy itself.

Program Objectives

All philosophy programs aim to: (1) equip students with an understanding of a range of philosophers and philosophical problems, while encouraging as deep a critical engagement with those philosophers and problems as is feasible in the time available; (2) promote respect for the norms of: clarity; careful analysis; critical reflection; rational argument; sympathetic interpretation and understanding; and impartial pursuit of truth; (3) promote independence of thought and a critical and analytical approach, not only to theories and concepts, but also to the assumptions on which they are based; (4) equip students with the core skills involved in: careful reading, comprehension and compression of textual material; clear thinking; sound argumentation; and the clear and well-organized expression of ideas; (5) provide excellent teaching which is informed and invigorated by the research activities of faculty; (6) facilitate an awareness of the application of philosophical thought to other academic disciplines or to matters of public interest, encouraging students to apply philosophical skills more widely where appropriate.

Program Learning Outcomes

By the end of the program of study:

1. Students should be competent in formal techniques, including, but not limited to, formal logic.
2. Students should be able to present critically, yet sympathetically, philosophical views that differ from their own.
3. Students should be able to write clearly and in an organized fashion (appropriate to the content and context, and appropriate for a graduating major).
4. Students should be able to make out a reasoned case in support of their views (appropriate to the content and context, and appropriate for a graduating major).

Requirements for the Major

A total of at least twelve courses in Philosophy*	**36 credits**

- At least two courses at the 400 level
- at least four courses at the 300 level or above
- at least one course in logic at any level
- at least two courses numbered 200 or above in the history of pre-twentieth-century philosophy
- at least two courses numbered 200 or above in value theory (including aesthetics and political philosophy as well as ethics)
- at least two courses numbered 200 or above in metaphysics or epistemology (including philosophy of science, philosophy of mind, and philosophy of religion, as well as metaphysics and theory of knowledge)
- A grade of 'C' or better for all courses counted toward the major

** not counting Internship course (PHIL 386)*

Supporting Courses	**15 credits**

Fifteen hours in a supporting area; the courses do not all have to be in the same department, but they should reflect a coherent program of study. The supporting area must be chosen in consultation with a departmental advisor. For further information, students should consult the undergraduate handbook on the philosophy department's website.

Requirements for the Minor

Requirements for the Minor

1. A total of 18 hours (six courses) in philosophy, not counting PHIL 386.

2. At least three courses numbered 300 or above; at least one course numbered 200 or above in the history of pre-twentieth-century philosophy; at least one course numbered 200 or above in value theory (including aesthetics and political philosophy as well as ethics); at least one course numbered 200 or above in metaphysics or epistemology (including philosophy of science, mind, and philosophy of religion, as well as metaphysics and theory of knowledge).

3. A grade of C or higher in each course counted toward the minor requirement.

Advising

Philosophy Majors must be advised each semester before registration.

Honors Program

To be admitted, students should have a GPA 3.0 overall, and 3.5 in Philosophy. Honors involves 6 credit hours of independent study: PHIL 498 Topical Investigations, taken over two consecutive semesters, normally in senior year. Honors students write a Thesis under the supervision of a member of the faculty, and are examined orally on their thesis topic, toward the end of the second semester, by a panel of three faculty members.

Student Societies and Professional Organizations

The Philosophy Club is organized by students in our programs. It hosts visiting speakers, shows philosophically interesting movies and organizes other events.

Scholarships and Financial Assistance

The W.E. Schlaretzki Prize is given to the most outstanding graduating senior each year. The Joseph and Beth Duckett Scholarship is given to the most outstanding junior.

Awards and Recognition

See scholarship section

PHYSICAL SCIENCES PROGRAM (PSCI)

College of Computer, Mathematical and Physical Sciences
1120 John S. Toll Physics Building, 301-405-5979
www.physics.umd.edu/psci
phys-ugradinfo@physics.umd.edu
Chair: T. Einstein (Prof)

The Major

The role of the Physical Sciences Program (PSCI) is to develop skills in the areas of analytic thinking, problem solving, understanding systems, and multidisciplinary perspectives. In a world of increasing technical complexity, knowledge of the physical sciences helps individuals to evaluate scientific claims and to make informed decisions about industrial and medical technology, environmental concerns, intellectual property, etc. The Program helps prepare students for a variety of careers requiring a broad scientific background, including meteorology, earth sciences, scientific computation, science writing/journalism, patent law, military/industrial leadership, technical sales, and public policy.

The Physical Sciences Program consists of a basic set of courses in physics, chemistry and mathematics, followed by a variety of courses chosen from these and related disciplines: astronomy, geology, meteorology, computer science, and the engineering disciplines. Emphasis is placed on a broad program as contrasted with a specialized one.

Students are advised by members of the Physical Sciences Committee. This committee is composed of faculty members from each of the represented disciplines. The selection of a primary advisor depends upon the interest of the students. Usually the student will choose to work with one of the committee members representing the discipline the student has selected as the primary area of concentration to satisfy the distributive requirements of the program. Two secondary area advisors are also required.

Admission to the Major

The Physical Sciences Program is not a Limited Enrollment Program. However, students must submit a program application and have it approved by the Physical Sciences Program Committee prior to graduating. The Committee is made up of the following faculty and staff:

Astronomy: G. Deming

Chemistry: M. Montague-Smith
Computer Science: B. Adams
Geology: J. Merck
Engineering: N. Hollywood
Mathematics: I. Chan
Meteorology: R. Hudson
Physics: T. Einstein
Advisor: T. Gleason

Approval of Program Plans

All students must submit a program plan outlining what courses they plan to take to complete their program. These should include both the core courses and the distributive 300-400 level courses of 24 credits beyond the core.

In preparing such a program plan, students should keep in mind that the Physical Sciences Committee will look for courses that will support the purpose or goals of the program. These plans should be submitted as early as possible, normally no later than the beginning of the junior year. This is important because it will provide students with sufficient time to plan an appropriate program. The program plans will be approved by the Physical Sciences Committee and filed in the Dean's Office. Any changes to the plan must be approved in writing by the student's advisor and the Chairperson.

Students planning to use any of the special topics, or special programs topics courses (including PHYS 318) as part of their Physical Sciences requirement must obtain written approval to do so. Many of these special topics courses are intended for non-science students and are not suitable for Physical Sciences majors.

In preparing a program plan, students should keep in mind that certain other courses are also not considered suitable for a Physical Sciences major. In particular, courses at lower levels than the core courses designed primarily for non-sciences students may be disallowed. Contact the Program Advisor for specific details.

Selection of College

Students may elect to receive their degrees from either the College of Computer, Mathematical and Physical Sciences, the College of Agriculture and Natural Resources, or the College of Chemical and Life Sciences. College of CMPS students have no further requirements to fulfill beyond those stated here plus the General Education Requirements. Agriculture and Natural Resources and Life Sciences students must also satisfy their respective College requirements.

Requirements for the Major

The curriculum of the Physical Sciences Program has a high degree of flexibility to allow selection of courses to meet the interests and goals of the individual student. To earn a Bachelor of Science degree in the Physical Sciences Program, a student must satisfactorily complete the following requirements:

1. Basic Requirements. Courses are required in four foundational disciplines.

a. Chemistry: CHEM 135 and CHEM 132 or 136 (4 credits)
b. Mathematics: MATH 140, 141 and one other math course for which MATH 141 is a prerequisite (11 or 12 credits)
c. Physics: PHYS 161, 260, 261, 270, 271 (11 credits) or PHYS 171, 174, 272, 273, 275, 276 (14 credits). Students desiring a strong background in physics should take the 171-276 sequence, which is required of physics majors and offers much smaller classes than the 161-271 sequence.
d. Computer Science: CMSC 106, CMSC122, or CMSC 131, or PHYS 165, or ENEE 114, or ENEE 240, or ENEE 241. Students who are taking Computer Science as an area of concentration must also complete: CMSC 114 or 132, CMSC 214 or 212, and CMSC 250.
e. Science/Technical Elective (3 or 4 credits): See undergraduate advisor for details

2. Distributive Requirements. Beyond the basic courses, students complete 24 upper level (300-400) distributive credits. All students must complete 18 of the 24 distributive credits as physical sciences majors. The distributive credits must be divided among three areas of concentration with at least 6 credits in each area. The areas of concentration include the disciplines of chemistry, physics, mathematics (including statistics), astronomy, geology, meteorology, computer science or one of the engineering disciplines. Students who wish to select electrical engineering need the permission of the Assistant Dean in the College of Engineering.

3. General Major Requirements. Programs in the Physical Sciences are usually sequential in nature, and students must be careful to satisfy prerequisites in all cases. Students are advised to develop a physical sciences curriculum with the help of the Physical Sciences advisors as soon as possible, but preferably by the end of the sophomore year. All Physical Science students must have a planned program of study approved by the Physical Sciences Committee. In no case shall the committee approve a program which has less than 18 credits in the three distributive areas of the Physical Sciences program to be completed, at the time the program is submitted. A grade of C or better must be earned in all program courses (basic prerequisite and distributive requirement courses).

4. The CORE Liberal Arts and Sciences Studies Program. The requirements of the CORE program are described in Chapter 5 of this catalog. The program requires a total of 43 credits.

5. Elective Requirements. In addition to meeting the requirements stated above, each physical sciences student must plan a sufficient number of elective courses to meet the minimum 120 credits needed for graduation. Engineering courses used for one of the options must all be from the same department, e.g., all must be ENG courses or a student may use a combination of courses in ENNU and ENMA, which are both offered by the Department of Materials and Nuclear Engineering; courses offered as engineering sciences, ENES, will be considered as a department for these purposes. Selection of ENEE courses is by Permission Only. Certain courses offered in the fields included in the program are not suitable for Physical Science majors and cannot count as part of the requirements of the program. These include any courses corresponding to a lower level than the basic courses specified above (e.g. MATH 115), some of the special topics courses designed for non-science students, as well as other courses. See department for a list of excluded courses.

Other Requirements for the Major

Students must complete all courses required for the major with a grade of C or higher.

Advising

Advising for undergraduates is available throughout the year in Room 1120 PHY. Students should also consult with the committee members for their areas of concentration. For early registration, advising is mandatory; students should check Testudo for their early registration date and should sign up for an appointment in Room 1120 PHY. Students who have been away more than two years may find that due to curriculum changes the courses they have taken may no longer be adequate preparation for the courses required to complete the major. Students in this situation must meet with the Program Advisor to make appropriate plans.

Honors Program

The Physical Sciences Honors Program offers students the opportunity for research and independent study, and will lead to a BS degree with Honors or High Honors. The requirements are:

a) Overall grade point average of 3.0 or better.

b) Physical Sciences courses grade point average of 3.2 or better.

c) An independent study course in the Physical Sciences Program - three credit minimum which may be distributed over two semesters (e.g. Astronomy 399 or 498, Chemistry 399, Computer Science 498, Geology 499, Mathematics 498, Meteorology 499 and Physics 399 or 499B).

d) An honors thesis summarizing independent research submitted to the Physical Sciences Committee.

e) An oral examination concerning thesis and related subjects. The thesis advisor and two other faculty members (at least one a member of the Physical Sciences Committee) will comprise the examining committee.

Physical Education

See listing for Kinesiology in Chapter 7.

PHYSICS (PHYS)

College of Computer, Mathematical and Physical Sciences
1120 John S. Toll Physics Building, 301-405-5979
http://umdphysics.umd.edu/
phys-ugradinfo@physics.umd.edu
Chair: A. Baden (Prof)
Professors: J. Anderson, S. Anlage, T. Antonsen, E. Beise, S. Bhagat, D. Brill, H. Chen, T. Cohen, S. DasSarma (Dist Univ Prof), J. Drake, T. Einstein, R. Ellis, S. Eno, M. Fisher (Dist Univ Prof), S. Gates (Toll Chair, Dist Scholar-Teacher), J. Goodman (Dist Scholar-Teacher), O. Greenberg, R. Greene, N. Hadley (Assoc Chair), D. Hamilton, D. Hammer, A. Hassam, B. Hu, T. Jacobson (Dist Scholar-Teacher), A. Jawahery, X. Ji, T. Kirkpatrick, D. Lathrop, C. Liu, C. Lobb (Dist Scholar-Teacher), H. Milchberg (Dist Scholar-Teacher), R. Mohapatra (Dist Scholar-Teacher), C. Monroe, L. Orozco, E. Ott (Dist Univ Prof), H. Paik, K. Papadopoulos, W. Phillips (Dist Univ Prof, Nobel Laureate), E. Redish, S. Rolston (Assoc Chair), R. Roy, R. Sagdeev (Dist Univ Prof), A. Skuja, K. Sreenivasan (Dist Univ Prof), G. Sullivan (Assoc Chair), T. Venkatesan (Research Prof), S. Wallace, F. Wellstood, E. Williams (Dist Univ Prof, Dist Faculty Research Fellow), V. Yakovenko, J. Yorke (Dist Univ Prof)
Associate Professors: I. Appelbaum, P. Bedaque, A. Buonanno, Z. Chacko, W. Dorland, M. Fuhrer, W. Losert, D. Roberts, E. Seo
Assistant Professors: K. Abazajian, K. Agashe, V. Galitski, M. Girvan, C. Hall, K. Hoffman, K. Kim, A. LaPorta, M. Ouyang, J. Paglione, P. Shawhan, M. Tiglio, A. Upadhyaya
Lecturers: F. Baker, J. Gonano, J. Jacobson, I. Korobkin, H. Peritt, M. Rapport, K. Restorff, S. Singhal
Affiliate Professors: W. Hill, P. O'Shea, G. Oehrlein, J. Weeks
Affiliate Associate Professors: R. Phaneuf, I. Takeuchi
Affiliate Assistant Professors: J. Cumings
Adjunct Professors: G. Bryant, C. Clark, K. Helmerson, P. Julienne, P. Lett, J. Lynn, J. Mather (Nobel Laureate), A. Migdall, S. Ritz, G. Solomon, R. Tycko, C. Williams
Adjunct Associate Professors: J. Porto, K. Schwab, E. Tiesinga
Adjunct Assistant Professors: I. Spielman
Professors Emeriti: C. Alley, D. Boyd, C. C. Chang, C. Y. Chang, N. Chant, D. Currie, A. DeSilva, J. Dorfman, A. Dragt, H. Drew, D. Falk, A. Glick, G. Goldenbaum, H. Griem, H. Holmgren, C. Kacser (Assoc Prof Emeritus), Y. Kim, V. Korenman, D. Langenberg (Chancellor Emeritus), J. Layman, G. Mason, C. Misner, R. Park, J. Pati, J. Richard, P. Roos, J. Sucher, J. Toll (Chancellor Emeritus), C. Woo

The Major

Physics is an exciting and rewarding field of study. Physicists make important discoveries that often change the way we live by examining the way things work, and there are still many discoveries to be made.

At Maryland, physics majors benefit from small class-sizes, outstanding teachers and very talented classmates. However, we believe that the most important physics education occurs outside the classroom, and we encourage all of our majors to participate in cutting-edge research with our internationally recognized faculty. Through participation in research projects, our students learn what it takes to conduct world-class scientific research. Whether students decide to continue to study physics in graduate school or work in fields such as engineering, software development, law, business or education, a bachelor's degree in physics from Maryland provides an excellent foundation.

Students majoring in Physics can follow either the Professional Physics area of concentration, the Meteorology Physics area of concentration, or the Education Physics area of concentration.

Requirements for the Major

	Courses required for Physics Major:	
		Credits
	Lower-level courses for all areas of concentration:	
PHYS171	Introductory Physics: Mechanics	3
PHYS174	Physics Laboratory Introduction	1
PHYS272	Introductory Physics: Fields	3
PHYS273	Introductory Physics: Waves	3
PHYS275	Experimental Physics I: Mechanics, Heat, and Fields	2
PHYS276	Experimental Physics II: Electricity and Magnetism	2
MATH140	Calculus I	4
MATH141	Calculus II	4
MATH241	Calculus III	4
MATH246	Differential Equations	3
MATH240	Linear Algebra	4
	Upper-level courses for Professional Physics area of concentration:	
PHYS374	Intermediate Theoretical Methods	4
PHYS375	Experimental Physics III: EM Waves, Optics, and Modern Physics	3
PHYS401	Quantum Physics I	4

PHYS402	Quantum Physics II	4
PHYS404	Introduction to Statistical Mechanics	3
PHYS405	Advanced Experiments	3
PHYS410	Classical Mechanics	4
PHYS411	Intermediate Electricity and Magnetism	4
	Upper-level and supporting courses for Meteorology Physics area of concentration:	
CHEM135/136	Chemistry for Engineers/Lab	4
MATH462	Partial Differential Equations for Scientists and Engineers	3
AOSC431	Meteorology for Scientists and Engineers I	3
AOSC432	Meteorology for Scientists and Engineers II	3
AOSC434	Air Pollution	3
PHYS375	Experimental Physics III: Electromagnetic Waves, Optics	3
PHYS401	Quantum Physics I *	4
PHYS402	Quantum Physics II *	4
PHYS404	Introduction to Statistical Thermodynamics	3
	**The PHYS 401-402 sequence in the Meteorology Physics area of concentration may be replaced by two of the following courses:*	
PHYS405	Advanced Experiments	3
PHYS406	Optics	3
PHYS410	Classical Mechanics	4
PHYS411	Intermediate Electricity and Magnetism	4
PHYS420	Principles of Modern Physics	3
	Upper-level and supporting courses for Education Physics area of concentration:	
EDPL301	Foundations of Education	3
EDHD413	Adolescent Development	3
EDHD426	Cognitive and Motivational Basis of Reading: Reading in Content Areas	
EDCI463	Teaching Reading in Content Area II	3
PHYS374	Intermediate Theoretical Methods	4
PHYS411	Intermediate Electricity and Magnetism	4
PHYS401	Quantum Physics I	4
PHYS375	Experimental Physics III: Electromagnetic Waves, Optics	3

In the Education Physics area of concentration: EDPL 301 may be replaced by EDPL 401 Educational Technology, Policy and Social Change (3). PHYS 401 may be replaced by PHYS 420- Principles of Modern Physics (3). PHYS 375 may be replaced by one additional non-seminar 400-level approved Physics course of 3-4 credits.

Students who are considering pursuing the Education Physics area of concentration are encouraged to enroll in EDCI 280-Introduction to Teaching, for a survey of education and teaching. The Education Physics area of concentration is designed to accommodate students obtaining a teaching certificate through the College of Education. However, completing all the courses in the Education Physics area of concentration does not in itself satisfy all requirements for obtaining a teaching certificate. Students pursuing the Education Physics area of concentration who want to also obtain a teaching certificate in secondary education must first apply and be admitted to the Secondary Education Program in the College of Education and then complete additional courses in that program.

Students planning to double major (or seek a double degree) in Physics and Astronomy should note that this combination does not automatically satisfy CORE Advanced Studies. These students must complete CORE Advanced Studies by taking courses from departments other than Physics and Astronomy.

Other Requirements for the Major

Students must complete all courses required for the major with a grade of C or higher.

Requirements for the Minor

This minor provides a rigorous foundation in physics for students who choose not to complete the entire physics major. The minor begins with a set of two introductory courses (6 credits) in electromagnetic fields (PHYS 262 or PHYS 272) and waves (PHYS 263 or PHYS 273). As part of this introduction to Physics, the minor also requires a one-credit introductory physics laboratory (PHYS 174, PHYS 261, or PHYS 271) involving techniques of data gathering and analysis. To obtain a deeper understanding of physics, the minor requires three additional upper-level courses (3-4 credits each), which students can select from the list below.

- Other upper level Physics courses can be substituted only with approval from the Department's undergraduate director and the Faculty Minor Advisor.
- All courses must be completed with a grade of C or better to be counted towards the minor.
- No more than 7 credits in this minor can count toward major requirements. Students with more than 7 credits of overlap must substitute non-overlapping 300 or 400 level courses from the above list to reduce the overlap to no more than 7 credits.
- Physics majors and students majoring in Astronomy are not eligible to complete the Physics Minor due to the large number of overlapping course requirements.

		Credits
	Courses required for the minor	**7**
	One from:	
PHYS174	Physics Laboratory Introduction	1
PHYS261	General Physics: Vibrations, Waves, Heat, Electricity and Magnetism: Laboratory	1
PHYS271	General Physics: Electrodynamics, Light, Relativity and Modern Physics: Laboratory	1

	One from:	
PHYS272	Introductory Physics: Fields	3
PHYS260	General Physics: Vibrations, Waves, Heat, Electricity and Magnetism	3
	One from:	
PHYS273	Introductory Physics: Waves	3
PHYS270	General Physics: Electrodynamics, Light, Relativity and Modern Physics	3
	Three from the following:	*9-12*
PHYS374	Intermediate Theoretical Methods	4
PHYS375	Experimental Physics III: EM Waves, Optics & Modern Physics	3
PHYS401	Quantum Physics I	4
PHYS402	Quantum Physics II	4
PHYS404	Introductory Statistical Thermodynamics	3
PHYS410	Classical Mechanics	4
PHYS411	Intermediate Electricity and Magnetism	4
PHYS465	Modern Optics	3
PHYS474	Computational Physics	3

Prerequisites
MATH 140 (4 credits), MATH 141 (4 credits), MATH 241 (4 credits), MATH 240 (4 credits), MATH 246 (3 credits), and Physics 161 (or Physics 171) (3 credits) are prerequisites for some of the courses in this program.

Contact
Students interested in earning a minor in physics should contact the undergraduate advisor for the Physics Department:

1120F John S. Toll Physics Building; 301-405-5979
email: phys-ugradinfo@physics.umd.edu

Note: At the beginning of the semester in which graduation is intended, a student should make an appointment with the Physics Department's Undergraduate Advisor to fill out the appropriate paperwork.

Advising

Advising for undergraduates is available throughout the year in Room 1120 PHY. For early registration, advising is mandatory; students should check Testudo for their early registration date and should sign up for an appointment in Room 1120 PHY. Students who have been away more than two years may find that due to curriculum changes the courses they have taken may no longer be adequate preparation for the courses required to complete the major. Students in this situation must meet with the Departmental Advisor to make appropriate plans.

Honors Program

To receive a citation of "with honors in physics" the student must meet certain GPA requirements and pass a comprehensive examination in his or her senior year. To receive a citation of "with high honors in physics" he or she must also complete and defend a senior thesis. For more information, students should consult the Departmental Advisor.

Student Societies and Professional Organizations

Society of Physics Students (SPS); Sigma Pi Sigma

Plant Biology

Departments in the College of Chemical and Life Sciences have been reorganized. Courses in plant biology are now offered by the Department of Cell Biology and Molecular Genetics.

PLANT SCIENCES (PLSC)

College of Agriculture and Natural Resources
2102 Plant Sciences Building, 301-405-4355
www.psla.umd.edu/
khunt@umd.edu
Chair: W. Kenworthy (Professor and Acting Chair)
Director: C. Walsh (Professor)
Professors: S. Cohan (Prof Of Practice), P. Dernoeden, K. Everts, W. Kenworthy, M. McIntosh, R. Ritter, J. H. Sullivan, C. Walsh
Associate Professors: M. Carroll, G. Coleman, J. Costa, D. Glenn, A. Grybauskas, R. Kratochvil, J. Lea-Cox, M. Neel, L. Slaughter, T. Turner
Assistant Professors: Y. Balci, P. Chaverri, J. Zhu
Affiliate Professors: J. Kays (Affiliate Agent), M. Kearney
Affiliate Associate Professors: R. Tjaden
Affiliate Assistant Professors: A. Ristvey (Affiliate Agent)
Adjunct Professors: P. Cregan, A. Mucciardi
Adjunct Assistant Professors: S. Natarajan, M. Pooler, S. Tangren, G. Ude
Professors Emeriti: M. Aycock, V. Bandel, C. Beste, J. Bouwkamp, A. Decker, G. Deitzer, D. Fanning, F. Gouin, J. Hoyert, C. Link, C. McClurg, C. Mulchi, T. Ng, C. Oliver, B. Quebedeaux, J. Shanks, T. Solomos, L. Vough, R. Wiley

The Major

Plant Sciences combines basic science courses with applied technical classes to prepare students for the many and varied careers in this growing field. Students seeking a Plant Sciences degree must complete a series of requirements in one of the following Areas of Concentration: Horticulture and Crop Production, Landscape Management, Plant Science, Turf and Golf Course Management, or Urban Forestry.

- Horticulture and Crop Production prepares students for advisory and managerial positions in agronomic, greenhouse, nursery, orchard and vegetable crops. Students in this Area focus their studies on plant growth and development and plant protection.

- Landscape Management trains students for management positions in the landscape industry. The curriculum combines plant science, design and business management courses enabling graduates to meet the challenges of careers in the green industry.
- Plant Science is designed to prepare students for a research career. Whether students are interested in working in plant biotechnology, breeding, conservation, genomics, or plant protection, this area provides a strong foundation for postgraduate education.
- Turf and Golf Course Management provides the skills needed to succeed as a turfgrass professional, stressing an interdisciplinary approach to this career.
- Urban Forestry, a relatively new program and candidate for accreditation by the Society of American Foresters (SAF) exposes students to a wide range of skills needed for managing urban forests and seeking employment in the tree-care industry.

The Department of Plant Science and Landscape Architecture also offers two additional degrees: the Bachelor of Science (B.S.) in Agricultural Sciences and Technology and the Bachelor of Landscape Architecture (BLA). These programs are described elsewhere in this catalog under "Agricultural Sciences and Technology" and "Landscape Architecture."

Courses offered by this department may be found under the following acronyms: PLSC and LARC.

Program Learning Outcomes

- Students will develop technical and knowledge-based skills in the required areas of study.
- Students will use technical and basic learned knowledge to collaborate, solve problems and then articulate conclusions.
- Students shall develop effective communication skills and demonstrate the ability to present ideas with clarity to an appropriate audience.
- Students will connect and build relationships with external groups in the appropriate fields of study.

Requirements for the Major

Requirements for all Areas of Concentration		**Credits**
CHEM131/132	General Chemistry I	4
ENGL101	Introduction to Writing	3
ENGL393	Technical Writing	3
ENST200	Fundamentals of Soil Science	4
MATH113	College Algebra with Applications, **OR**	3
MATH115	Precalculus	
PLSC100	Introduction to Horticulture, **OR**	
PLSC101	Introductory Crop Science	4
PLSC398	Senior Seminar	1
	With the exception of ENGL101 and ENGL393, a grade of 'C' or better is required in the courses above.	

Area B: Horticulture and Crop Production

Requirements		**Credits**
AREC250	Elements of Agricultural and Resource Economics	3
AREC306	Farm Management	3
BSCI337	Biology of Insects	4
CHEM104	Fundamentals of Organic and Biochemistry	4
ENST411	Principles of Soil Fertility	3
PLSC201	Plant Structure and Function	4
PLSC202	Management of Horticultural Crops, **OR**	3
PLSC203	Plants, Genes and Biotechnology, **OR**	
PLSC271	Plant Propagation	
PLSC389	Internship	1-3
PLSC400	Environmental Plant Physiology	3
PLSC420	Principles of Plant Pathology	4
PLSC453	Weed Science	3

Advanced Production Electives (Select four of the following)

BSCI497	Insect Pests of Ornamentals and Turf	4
ENST4xx	Soils Courses (Minimum of two)	6-8
PLSC305	Introduction to Turf Management	3
PLSC432	Greenhouse Crop Production	3
PLSC433	Technology of Fruit and Vegetable Crop Production	4
PLSC452	Principles of Landscape Establishment and Maintenance	3
PLSC456	Nursery Crop Production	3
PLSC474	Physiology of Maturation and Storage of Horticultural Crops	3

PLSC4xx	Crops Courses (Minimum of two)	6-8

Total CORE, PLSC and Horticulture and Crop Production Area	**104-108**
University Electives	**12-16**

Area C: Landscape Management Requirements		**Credits**
AREC250	Elements of Agricultural & Resource Economics, **OR**	3/4
ECON200	Principles of Micro-Economics	
BMGT220	Principles of Accounting I	3
BMGT350	Marketing Principles and Organization	3
BSCI337	Biology of Insects	4
CHEM104	Fundamentals of Organic and Biochemistry	4
LARC140	Graphic Fundamentals Studio	4
LARC160	Introduction to Landscape Architecture	3
PLSC200	Land Surveying	2
PLSC201	Plant Structure and Function	4
PLSC202	Management of Horticultural Crops	4
PLSC253	Woody Plants for Mid-Atlantic Landscapes I	3
PLSC254	Woody Plants for Mid-Atlantic Landscapes II	3
PLSC255	Landscape Design and Implementation	4
PLSC271	Plant Propagation	3
PLSC305	Introduction to Turf Management, **OR**	3
ENST411	Principles of Soil Fertility	
PLSC320	Principles of Site Engineering	4
PLSC321	Landscape Structures and Materials	3
PLSC361	Commercial Principles of Landscape Management	3
PLSC389	Internship	1-3
PLSC420	Principles of Plant Pathology	4
PLSC452	Principles of Landscape Establishment and Maintenance	3

Total CORE, PLSC and Landscape Management Area	**105**
University Electives	**15**

Area D: Plant Science Requirements		**Credits**
BSCI337	Biology of Insects	4
BSCI442	Plant Physiology, **OR**	
PLSC 400	Environmental Plant Physiology	3
CHEM231/232	Organic Chemistry I	4
CHEM271/272	General Chemistry and Energetics	4
MATH140	Calculus I, **OR**	3
MATH220	Elementary Calculus I	
PHYS121	Fundamentals of Physics I	4
PLSC201	Plant Structure and Function	4
PLSC202	Management of Horticultural Crops	4
PLSC203	Plants, Genes and Biotechnology	3
PLSC271	Plant Propagation	3
PLSC399	Special Problems in Plant Science	3
PLSC420	Principles of Plant Pathology	4

Advanced Plant Science Electives (Select one of the following)

PLSC403	Crop Breeding	3
PLSC430	Water and Nutrient Planning for the Nursery & Greenhouse Industry	3
PLSC432	Greenhouse Crop Production	3
PLSC433	Technology of Fruit and Vegetable Production	4
PLSC452	Principles of Landscape Establishment and Maintenance	3
PLSC456	Nursery Crop Production	3
PLSC474	Physiology of Maturation and Storage of Horticultural Crops	3

Advanced Science Electives (Select one of the following)

BCHM261	Elements of Biochemistry, **OR**	4
BSCI435	Plant Biochemistry	
ENST411	Principles of Soil Fertility	3
ENST417	Soil Hydrology and Physics	3
ENST421	Soil Chemistry	4
PHYS122	Fundamentals of Physics II	3

Total CORE, PLSC and Plant Science Area	101-104
University Electives	16-19

Area E: Turf and Golf Course Management Requirements		**Credits**
BSCI105	Principles of Biology I	4
BSCI106	Principles of Biology II	4
BSCI337	Biology of Insects	4
CHEM104	Fundamentals of Organic and Biochemistry	4
COMM100	Foundations of Oral Communication, **OR**	
COMM107	Oral Communication: Principles and Practices	3
ENBE237	Design of Irrigation Systems	1
ENST411	Principles of Soil Fertility	3
PHYS117	Introduction to Physics, **OR**	4
PHYS121	Fundamentals of Physics I	
PLSC305	Introduction to Turf Management	3
PLSC389	Internship	1-3
PLSC400	Environmental Plant Physiology	3
PLSC401	Pest Management Strategies for Turfgrass	3
PLSC402	Sports Turf Management	3
PLSC410	Commercial Turf Maintenance and Production	3
PLSC420	Principles of Plant Pathology	4
PLSC453	Weed Science	3

Total CORE, PLSC and Turf and Golf Course Management Area	99
University Electives	21

Area F: Urban Forestry Requirements		**Credits**
AREC240	Introduction to Economics and the Environment	3
BMGT220	Principles of Accounting I	3
BSCI337	Biology of Insects	4
BSCI497	Insect Pests of Ornamentals & Turf	4
CHEM104	Fundamentals of Organic and Biochemistry, **OR**	4
CHEM271/272	General Chemistry and Energetics	

ENST411	Principles of Soil Fertility	3
LARC160	Introduction to Landscape Architecture	3
PLSC171	Introduction to Urban Ecosystems	3
PLSC201	Plant Structure and Function	4
PLSC253	Woody Plants for Mid-Atlantic Landscapes I	4
PLSC254	Woody Plants for Mid-Atlantic Landscapes II	3
PLSC272	Principles of Arboriculture	3
PLSC361	Commercial Principles of Landscape Management	3
PLSC389	Internship	1-3
PLSC400	Environmental Plant Physiology	3
PLSC420	Principles of Plant Pathology	4
PLSC471	Forest Ecology	3
PLSC472	Capstone - Urban Forest Project Management	3

Suggested Core Courses and Electives[1]

BIOM301*	Introduction to Biometrics	3
BSCI460	Plant Ecology, **OR**	3
BSCI460/461	(Plant Ecology Lecture and Lab)	5
CHEM231/232*	Organic Chemistry I	4
CHEM241/242*	Organic Chemistry II	4
COMM107	Oral Communication: Principles and Practices	3
ENST413	Soil & Water Conservation	3
ENST415	GIS Applications in Soil Science	3
ENST444	Restoration Ecology	3
GEOG201	Geography of Environmental Systems	3
GEOG347	Introduction to Biogeography	3
GVPT170	American Government	3
GVPT273	Introduction to Environmental Politics	3
LARC450	Environmental Resources	3
MATH220*	Elementary Calculus I	3
NRMT460	Principles of Wildlife Management	3
NRMT461	Urban Wildlife Management	3
NRMT489B	Field Experience: Park Management	1
PHYS121*/122*	Fundamentals of Physics I / II, **OR**	8
PHYS141*/142*	Principles of Physics	
PLSC200	Land Surveying	2
PLSC203	Plants, Genes and Biotechnology	3
PLSC320	Principles of Site Engineering	3
PLSC400*	Environmental Plant Physiology	3
PLSC473	Woody Plant Physiology	3
PLSC475	Silviculture	4
SOCY100	Introduction to Sociology	3
SOCY105	Introduction to Contemporary Social Problems	3
SOCY305	Scarcity and Modern Society	3
SPAN223	United States Latino Culture	3
URSP100	Challenge of the Cities	3
URSP320	Planning of the Contemporary City	3
URSP372	Diversity and the City	3

Total CORE, PLSC and Urban Forestry Area	99
University Electives	21

[1] *Note: Courses with an asterisk are suggested electives for students planning on graduate study in Forestry.*

Requirements for the Minor

Minor in Landscape Management

The Landscape Management minor provides students with a foundation in plant sciences and business management. The required science courses lead to an integrative understanding of plant growth and development and the plant's responses to its environment. These courses also teach students the skills needed to recommend best management practices and to identify plant abnormalities in the landscape. The business courses in this minor foster an understanding of the business structure, human resource management and financial management associated with landscape management companies.

All courses presented in this minor must be passed with a grade of C or better. To complete this minor, students will be expected to complete an 18-19 credit course sequence. Students should also be aware that many of the courses in this minor list PLSC100, *Introduction to Horticulture*, as a prerequisite.

Curriculum:

		Credits
PLSC253	Woody Plants for Mid-Atlantic Landscapes I	3
PLSC254	Woody Plants for Mid-Atlantic Landscapes II	3
PLSC305	Introduction to Turf Management	3
PLSC361	Commercial Principles of Landscape Management	3
PLSC452	Principles of Landscape Establishment and Maintenance	3
	Select one of the following courses:	
AREC240	Introduction to Agriculture and the Environment	4
AREC250	Elements of Agricultural and Resource Economics	3
AREC306	Farm Management	3
BMGT220	Principles of Accounting I	3

Total Credits: A minimum of 18 or 19 credits is required to complete this minor. (Depending on which AREC or BMGT course is chosen)

- A student may use a maximum of six credits (or two courses) to satisfy the requirements of both a major and a minor. In the event that more than six credits of coursework listed above are required in the student's major, he or she should contact the Landscape Management faculty advisor for course substitutions.
- This minor is particularly relevant to students who are interested in pursuing a career in the landscape industry. Landscape architecture, environmental science and policy, and life science majors can readily complete these minor requirements within their four-year programs.
- Students from the business school and social sciences who are seeking managerial careers in this rapidly-expanding service industry would also find this minor to be relevant.

Advising

The Department has mandatory faculty advising for each of its major and minor programs. Students are required to meet with their faculty advisor at least twice a year. See the Program Management Specialist in Undergraduate Studies in 2102 Plant Sciences Building (301-405-4355) for additional information.

Internships

Internships with scientists are available at nearby federal and state agencies. Numerous internships also exist and can be readily arranged for students interested in private sector employment.

Student Societies and Professional Organizations

The department sponsors student teams that participate in regional and national contests. These teams prepare in the following areas: turf, weeds and crops, and landscape contracting.

Scholarships and Financial Assistance

Several scholarships and awards are available to PLSC students. Contact the Associate Dean's office at 301-405-2078 for additional information. The Department also maintains a listing of scholarships. Contact Kathy Hunt in 2102 Plant Sciences, 301-405-4355.

The Office of Student Financial Aid (OSFA) administers all types of federal, state and institutional financial assistance programs and, in cooperation with other university offices, participates in the awarding of scholarships to deserving students. For information, visit: www.financialaid.umd.edu.

Portuguese

See "Other Language Programs" in the School of Languages, Literatures and Cultures entry for more information.

Pre-Health Professions Advising and Programs

0129 Chemistry Building, 301-405-7805
www.prehealth.umd.edu/
Director of Health Professions Advising Office: Wendy Loughlin
Advisor in Health Professions Advising Office: Nick Celedon

The Health Professions Advising Office (HPAO), part of the College of Chemical and Life Sciences, serves University of Maryland students and alumni interested in pursuing carees in Medicine, Dentistry, or Allied Health. Students interested in the veterinary profession should visit the Center for Public and Corporate Veterinary Medicine and visit the Veterinary Medicine web site at www.agnr.umd.edu/undergrad/preVet.cfm.

Advisors and staff in the HPAO provide students with pre-professional planning, including individual and group advising, career preparation workshops, admission information for pre-professional programs, a committee process to support their professional school applications, and much more. Pre-professional program advising provides the academic, and experiential foundations required for entrance into professional schools.

The health professions include the fields of Medicine, Dentistry, Optometry, and Podiatry, and the Allied Health fields of Dental Hygiene, Nursing, Pharmacy, Physical Therapy and Physicians Assistant. The pre-health professional programs at the University of Maryland are not degree granting programs. They are recommended programs of study for students interested in each profession. Pre-professional students who plan to earn a bachelor's degree should declare an academic major. A pre-professional student who does not declare an academic major will be designated as an undecided student in Letters and Sciences, where they will receive academic advising. Pre-professional students, including those interested in the allied health fields, may receive advising related to admission to professional schools through the Health Professions Advising Office.

Students planning to pursue professional programs in Medicine, Dentistry, Optometry, Osteopathic Medicine or Podiatry after graduation from University of Maryland must declare an academic major. Students who are undecided about which academic major they will declare may enter the Letters and Sciences, but must adhere to the University of Maryland policy that students declare a degree-granting major by the time they reach 60 credits.

Students interested in Allied Health professions can in some cases transfer to such programs before earning a bachelor's degree. Such students may enter Letters and Science, where they will receive academic advising. They too must adhere to the University of Maryland policy that students must declare an academic major by the time they reach 60 credits.

The University of Maryland participates in an early assurance program with George Washington University School of Medicine. More information can be found at www.prehealth.umd.edu/special programs.html

Pre-Nursing

The Pre-Nursing track prepares students for entrance into a professional curriculum for Nursing at institutions that offer Bachelor of Science in Nursing programs. Pre-Nursing is not a degree-granting program at the University of Maryland, College Park. A Baccalaureate degree program for a Bachelor of Science in Nursing (B.S.N.) follows a 2+2 model also known as a Traditional Baccalaureate program. Students may complete two years of prerequisite courses at the University of Maryland, College Park, and then apply for admission into a professional school to complete two years of professional course work, which includes classroom, laboratory, and clinical education.

University of Maryland students also have the option of completing a four-year degree at College Park in their selected major, in addition to completing approximately twenty to twenty-five credits of nursing prerequisites. This is the Second Degree or Accelerated Second Degree model. In this model, students complete degree requirements in their chosen major, as well as the nursing prerequisites for entrance into an accelerated B.S.N. program. The institution offering the program confers a Bachelor of Science in Nursing upon completion of the program.

Prerequisites may change; students are strongly encouraged to contact professional programs for the most current requirements. The American Association of Colleges of Nursing maintains specific information about individual nursing program prerequisites. See www.aacn.edu.

Pre-Dental Hygiene

The Pre-Dental Hygiene track prepares students for entrance into a professional curriculum for Dental Hygiene at institutions that offer Bachelor of Science in Dental Hygiene programs. Pre-Dental Hygiene is not a Pre-Dental major and is not a degree-granting program at the University of Maryland, College Park. A Baccalaureate degree program for a Bachelor of Science in Dental Hygiene (B.S.-D.H.) follows a 2+2 model. Students may complete two years of prerequisite courses at theUniversity of Maryland, College Park, and then apply for admission into a professional school.

University of Maryland students also have the option of completing a four-year degree at College Park in their selected major, in addition to completing dental hygiene prerequisites, the 4+2 model. In this case, students will complete degree requirements in their chosen major, as well as the pre-dental hygiene prerequisites for entrance into a professional dental hygiene program. The institution offering the degree confers a Bachelor of Science in Dental Hygiene upon successful completion of the program.

Prerequisites may change; students are strongly encouraged to contact professional programs for the most current requirements. The American Dental Hygienists Association and the American Dental Association maintain information about individual B.S.-D.H. program prerequisites. See www.adea.org

Pre-Medicine (Allopathic, Osteopathic, Optometry, Podiatry)

Four-Year Baccalaureate Program

It is recommended that students planning to apply to medical school complete a four-year undergraduate degree prior to entrance into medical school. Students should choose an undergraduate degree program that matches their interests, and should plan how to satisfy their degree requirements and the general education requirements along with the courses required for medical school admission. Students should seek pre-medical advising early in order to create an appropriate four-year academic plan. The HPAO website provides specific information on each of the medical programs. The national associations: AAMC, www.aamc.org and AACOM, aacom.org provide current information for applicants.

Early Assurance Program

University of Maryland students have the opportunity to apply to The George Washington University School of Medicine Early Assurance Program. This program encourages talented and committed undergraduate sophomore students, who have achieved academic distinction, to gain a provisional early acceptance to the M.D. program. The George Washington University School of Medicine and Health Sciences makes the decision to accept a qualified student into the program. Selected sophomore students (rising juniors, when selected) are nurtured through their undergraduate experience at the University of Maryland. Upon successful completion of the undergraduate program and all delineated requirements, students are guaranteed admissions to The George Washington University School of Medicine and Health Sciences for a four-year M.D. degree program. Please visit HPAO to learn more about this program; the pre-medical website offers detailed information and specific instructions.

Pre-Occupational Therapy

The Pre-Occupational Therapy track prepares students for entrance into a professional curriculum for Occupational Therapy at institutions that offer professional advanced degrees, including master or doctoral degrees. Community colleges and technical schools offer associate degrees or certificates to students who wish to become occupational therapy assistants. Some colleges offer Bachelor degrees in Occupational Therapy, while others offer combined Bachelor and Master degree programs.

Students who wish to enter the occupational therapy profession may choose from several educational paths; they should thoroughly research the different options to determine the best path to their career goals.University of Maryland students have the option of completing a four-year degree at College Park, in their selected major, in addition to completing occupational therapy prerequisites. They may then choose to complete a Post-Bachelor certificate, Master of Science or doctoral degree in Occupational Therapy offered by professional schools. Some states require a degree in occupational therapy prior to approving licensure to work as an occupational therapist in that state. The certificate cannot substitute for a degree. Students should become familiar with the laws of the state(s) in which they wish to work if they choose to pursue a certificate rather than a degree.

Prerequisites may change; students are strongly encouraged to contact professional programs for the most current requirements. The American Occupational Therapy Association maintains specific information about individual program prerequisites. See www.aota.org

Pre-Pharmacy

The Pre-Pharmacy track prepares students for entrance into a professional curriculum for Pharmacy at institutions that offer a Doctor of Pharmacy (Pharm.D.) degree program. Pre-Pharmacy is not a degree-granting program at the University of Maryland, College Park. A Pharm.D. degree program follows a 2+4 model in which students complete two years of prerequisite courses at the University of Maryland, College Park and then apply for admission into a professional pharmacy school to complete four years of professional coursework, which includes classroom, laboratory, and clinical education.

University of Maryland students also have the option of completing a four-year degree at College Park in their selected major, in addition to completing pharmacy school prerequisites, a 4 + 4 model. In this model, students complete degree requirements in their chosen major, as well as the pre-pharmacy prerequisites for entrance into a professional pharmacy program. The institution offering the program confers a Pharm.D. degree upon completion of the program.

Prerequisites may change; students are strongly encouraged to contact professional programs for the most current requirements. The American Association of Colleges of Pharmacy maintains information about individual Pharm.D. program prerequisites. See www.aacp.org

Pre-Physical Therapy

The Pre-Physical Therapy track prepares students for entrance into a professional curriculum for Physical Therapy at institutions that offer a doctoral degree. Pre-Physical Therapy is not a degree-granting program at the University of Maryland, College Park.

Most physical therapy schools now confer only doctoral degrees, Doctor of Physical Therapy (D.P.T). Currently, the accepted, entry-level clinical degree to practice as a Physical Therapist is the D.P.T. The length of time to complete the D.P.T coursework is usually three years. University of Maryland students interested in attending a D.P.T program need to complete a four-year degree in their selected major in addition to completing physical therapy prerequisites. The coursework required to enter a Doctor of Physical Therapy (D.P.T.) degree program varies depending on the professional schools to which the student intends to apply and, importantly, the expected year of matriculation into the professional phase of Physical Therapy. Most physical therapy schools also require some health-care experience in the physical therapy field.

Several educational paths exist for students who wish to enter the physical therapy field. Students are encouraged to thoroughly research this profession and determine which educational path best leads to their particular career goals.

Prerequisites may change; students are strongly encouraged to contact professional programs for the most current requirements. The American Physical Therapy Association maintains information about individual program prerequisites. See www.apta.org

Pre-Physician Assistant

The Pre-Physician Assistant (P.A.) program prepares students for entrance into a professional curriculum at institutions that offer professional advanced degrees or post-baccalaureate certificates. Pre-Physician Assistant is not a degree-granting program at the University of Maryland, College Park. At the University of Maryland, students may complete the necessary prerequisite courses required by the professional physician assistant programs to which they will be applying.

Several educational paths exist for students who wish to enter the physician assistant field. Due to the many variables in the educational options, students are encouraged to thoroughly research this profession and determine which educational path best leads to their particular career goals. Students should check the particular prerequisites of the P.A. educational programs that interest them.

Prerequisites may change; students are strongly encouraged to contact professional programs for the most current requirements. The American Academy of Physician Assistants maintains information about individual program prerequisites. See www.aapa.org

Other Health Programs

The pre-biomedical science research and medical technology program prepares students for entrance into the professional curriculum for medical technologists and biotechnologists. Pre-Medical Technology is not a degree-granting program at the University of Maryland, College Park.

A degree program for a Bachelor of Science in Medical Technology (B.S.-M.T.) generally follows a 2+2 model. Students may complete two years of prerequisite courses at theUniversity of Maryland, College Park and then apply for admission into a professional school to complete two years of professional coursework, which includes classroom, laboratory, and clinical education.

University of Maryland students also have the option of completing a four-year degree at College Park in their selected major, in addition to completing medical technology prerequisites, the 4 + 2 model. In this model, students complete degree requirements in their chosen major, as well as the pre-medical technology prerequisites for entrance into a professional medical technology program. The institution offering the program confers a Bachelor of Science in Medical Technology degree on completion of the program.

Prerequisites may change; students are strongly encouraged to contact professional programs for the most current requirements. The American Society of Clinical Pathologists and the National Accrediting Agency for Clinical Laboratory Sciences maintain information about individual B.S.-M.T. program prerequisites.

Pre-Dentistry

The pre-professional program for pre-dental students provides advising for students preparing to apply to dental school. The recommendations of American dental schools and the requirements for a baccalaureate degree at the University of Maryland form the basis for the advising.

Four-Year Baccalaureate Program

Pre-dental students at the University of Maryland are encouraged to complete a four-year undergraduate degree, with a diversified curriculum, balancing humanities, social sciences and fine arts courses with science and mathematics courses, prior to entering dental school. Courses in which students work with their hands are also advised. Students in the four-year program, must plan an undergraduate experience that satisfies the requirements of their selected major, as well as pre-dental admission requirements. Students should seek pre-dental advising early in order to create an appropriate four-year pre-dental plan. The national associations www.adea.org provides current information for applicants.

Three-year Arts-Dentistry Degree Program

For highly motivated and academically talented students, the University of Maryland, College Park and University of Maryland School of Dentistry offer the three-year Arts-Dentistry Program. This program gives students the opportunity to apply to the University of Maryland School of Dentistry one year early. This accelerated program requires students to complete their dental school admission requirements in three years, as they apply to dental school at the end of the second year and the beginning of their third year. Competitive students must apply and be accepted by the University of Maryland Dental School. Students accepted in the combined arts-dentistry program, receive the B.S. degree (Arts-Dentistry) after satisfactory completion of the first year at the dental school and upon the recommendation of the Dean of the School of Dentistry and approval of the University of Maryland, College Park. Participation in the combined-degree program at the Un University of Maryland, College Park does not guarantee admission to the University of Maryland School of Dentistry.

The HPAO strongly urges incoming students interested in this combined-degree program to identify their interest and consult with the Pre-Health advisor very early in their academic career. Please visit the website for specific details and instruction. This is a highly competitive program for top students with broad exposure to the dental field and other extra curricular activities.

Pre-Professional Advising: Law

Pre-Law Advising Program

Letters and Sciences
0110 Hornbake Library, 301-405-2793
www.prelaw.umd.edu

The Pre-Law Advising Program, part of Letters and Sciences, serves students interested in pursuing law school and careers in law. The program provides students with law school planning, including individual and group advising, career preparation workshops, admission information, and much more. While law schools do not require, favor, or prefer specific majors, the pre-law advisor can provide guidance concerning the choice of major. Pre-law does not serve as an undergraduate major, nor does the program require completion of a specific academic curriculum.

Four-Year Baccalaureate Program

Most law schools require applicants to have received a Bachelor's degree prior to law school enrollment. A wide variety of majors give students an excellent foundation for law school. The student should select a major and plan an undergraduate experience in which they will be successful and helps them acquire skills that are essential in preparing to perform well on the LSAT, in law school, and ultimately as a lawyer. These skills include imaginative and coherent thinking, critical reasoning, accurate and perceptive reading, and a strong command of the spoken and written language, including grammar.

In some cases, law schools will consider truly outstanding applicants with only three years of academic work, as described below. Law schools do not require the completion of prerequisite courses for admission, but they do require that the student follow one of the standard academic majors offered at the student's undergraduate institution. The LSAT is offered four times per calendar year and is required of all applicants. More information on the LSAT and related admissions material may be found at www.lsac.org.

Three-Year Arts/Law Degree

The University of Maryland has cooperative agreements with the University of Maryland, School of Law and with the University of Baltimore Law School. These agreements provide students at College Park, who are enrolled in any recognized major and meet certain qualifications, with the opportunity to apply to law school one year early. If accepted, the Three-Year Arts/Law Degree program allows students to begin their law school studies prior to their receipt of their baccalaureate degree. Instead, the University of Maryland, College Park awards these students their baccalaureate degree in Arts/Law upon satisfactory completion of the first year of law school. Participation in this program at the University of Maryland, College Park and application to either or both of the aforementioned law schools under this program does not guarantee admission.

This program is only available with the University of Maryland, School of Law and the University of Baltimore Law School and may not be an appropriate choice for all students. Students who consider this program should contact the pre-law advisor for more information or view the website, at www.prelaw.umd.edu.

Pre-Professional Advising: Pre-Veterinary Medicine

Pre-Veterinary Medicine

0105 Symons Hall, 301-314-7222
www.ansc.umd.edu/undergraduate/flyers/preVetMed.html

University of Maryland students in any major may prepare for admission to veterinary school by completing the basic science and other courses required by veterinary colleges. The College of Agriculture and Natural Resources major in Animal Sciences major (Science/Pre-professional option) is designed to prepare students for the predominance of those required courses. However, students should consult catalogs from the veterinary schools to which they are interested in applying to determine the specific courses required by each. That information is also available through the American Association of Veterinary Medical Colleges: www.aavmc.org.

Advising for pre-veterinary students occurs at two levels: initially, Dr. Mark Varner, pre-veterinary advisor in the Department of Animal and Avian Sciences (1415 Animal Sciences Center; 301-405-1373 or email at markv@umd.edu), will advise students, regardless of major, about the basic courses required by most veterinary schools. As students progress and establish academic credentials, they should also use the advising resources of the Virginia-Maryland Regional College of Veterinary Medicine,8075 Greenmead Drive, University of Maryland, College Park, MD 20742-3711. Dr. Bettye Walters (301-314-6821, bwalter1@umd.edu) is the pre-veterinary advisor for the Regional College at that location.

Early Admission:
Students enrolled in the College of Agriculture and Natural Resources are eligible for a special degree program that confers a Bachelor of Science degree in Agriculture and Pre-Veterinary Medicine. Students who will have completed 90 undergraduate credits (including all science courses required for veterinary school application and university CORE) and will have met other application criteria for veterinary schools by the end of the junior year, may apply in the Fall of their junior year. If they matriculate in an accredited college of veterinary medicine, they may apply the successful completion of the first thirty hours of their professional training towards the completion of their baccalaureate degree. See the Undergraduate Catalog entry for Animal Sciences for more details.

Further information on pre-veterinary education in the College of Agriculture and Natural Resources may be obtained by contacting Ms. Elizabeth Weiss (301-314-7222 or email eweiss@umd.edu).

PSYCHOLOGY (PSYC)

College of Behavioral and Social Sciences

1107 Biology-Psychology Building, 301-405-5866
www.psychology.umd.edu
psycadvising@psyc.umd.edu
Chair: T. Wallsten (Chair)
Director: P. Hangas (Graduate Director), M. Marinelli (Undergraduate Director)
Professors: J. Blanchard, S. Brauth, J. Cassidy, R. Dooling, M. Gelfand, C. Gelso, I. Goldstein, P. Hanges, C. Hill, W. Hodos, A. Kruglanski, C. Moss, K. O'Brien, C. Ostroff, E. Scholnick, H. Sigall, B. Smith, C. Stangor, T. Wallsten, A. Woodward
Associate Professors: A. Chronis, M. Dougherty, C. Lejuez, K. Murnane, K. Norman, K. O'Grady, D. Yager
Assistant Professors: T. Carlson, L. Dougherty, J. Herberholz, A. De Los Reyes, T. Riggins, M. Wang
Lecturers: T. Capo, J. Gormally, F. Hall, J. Johnson, M. Johnson, M. Kelley, A. Leiman
Affiliate Professors: N. Epstein, E. Fink
Affiliate Associate Professors: C. Stevens, P. Tesluk, S. Wallsten
Affiliate Assistant Professors: M. Byrne, S. Daughters, K. Gratz, D. Petersen, M. Tull, K. Zamostny
Adjunct Professors: D. Beidel, A. Bellack, J. Gold
Adjunct Associate Professors: D. Fago, K. Klein
Adjunct Assistant Professors: J. Carter, S. Friedman, D. Huber, H. Jiang, D. Johnson, D. Lewin, G. Royalty, S. Spiegel, R. Streisand, B. Thompson, L. Tipton
Professors Emeriti: N. Anderson, R. Brown, R. Freeman, B. Fretz, L. Gollub, W. Hall, W. Hodos, R. McIntire, M. Penner, B. Schneider, R. Steele, R. Steinman, C. Sternheim, F. Tyler, R. Waldrop

The Major

The undergraduate major in psychology provides an introduction to the methods by which the behavior of humans and other organisms are studied, and to the biological conditions and social factors that influence behavior.

The program emphasizes a strong foundation in quantitative and research methods. Students who wish to pursue graduate study in psychology or related professional schools will have opportunities to participate in research.

Students who are interested in the biological aspects of behavior tend to choose a program leading to the Bachelor of Science (BS) degree, while those interested primarily in the impact of social factors on behavior tend to choose the Bachelor of Arts (BA) degree. The choice of program is made in consultation with an academic advisor.

Program Objectives

Students in the BA and BS programs in psychology will acquire the tools and experiences necessary for future training or work in the behavioral and social sciences. These include a foundation in research method, critical and creative problem solving skills, and the communication skills necessary to impart this knowledge to others. Students should also have developed content knowledge representing both the breadth and depth of the fields in psychology.

Program Learning Outcomes

The undergraduate curriculum in psychology has been designed to challenge students and to highlight the four major learning objectives that we believe will prepare our graduates for productive roles in society. These learning objectives are consistent with the institutional goals developed in the University of Maryland Learning Outcomes and the American Psychological Association's recommendations for undergraduate programs.

1. **Research Methods in Psychology**
   Students should understand and apply basic research methods in psychology including research design, data analysis, and interpretation.
2. **Critical Thinking Skills in Psychology**
   Students should be able to use critical and creative thinking, skeptical inquiry, and, when possible, the scientific approach to solve problems related to behavior and mental processes.
3. **Communication Skills**
   Students should be able to communicate effectively in a variety of formats.
4. **Content in Psychology**
   Students should demonstrate familiarity with the questions that gave rise to content knowledge, a sampling of the major concepts, theoretical perspectives, empirical findings, and historical trends in psychology.

For more information about Learning Objectives in the Undergraduate Psychology Program, please go to: www.psychology.umd.edu.

Admission to the Major

In accordance with University policy, the Department of Psychology has been designated a Limited Enrollment Program (LEP). All first-time freshman admits who request Psychology will be directly admitted into the major. Other first-time freshman that wish to declare Psychology as a major prior to the end of the schedule adjustment period of the second semester in residence will be allowed to do so.

In order to remain a Psychology major, newly admitted freshman will be required to meet an academic performance review on or before the end of the semester in which they attempt 45University of Maryland credits. This standard includes:

a. Completion of PSYC 100 with a grade of B or better, or, if a student enters with AP or IB credit for PSYC 100, this requirement is replaced by completion of PSYC 221 with a grade of B or better;
b. Completion of MATH 111 or 140 or 220 with a grade of C or better;
c. Completion of BSCI 105 or BSCI 106 or CHEM 131/132 or PHYS 121 with a grade of C or better;
d. A minimum cumulative GPA of 2.00.

All other students, including both internal and external transfer students, will not be admitted to the program until they have met the following requirements:

a. Completion of PSYC 100 with a grade of B or better, or, if a student enters with AP or IB credit for PSYC 100, this requirement is replaced by completion of PSYC 221 with a grade of B or better;
b. Completion of MATH 111 or 140 or 220 with a grade of C or better;
c. Completion of BSCI 105 or BSCI 106 or CHEM 131/132 or PHYS 121 with a grade of C or better;
d. A minimum cumulative GPA based on all previous college-level coursework of 2.70 or higher.

Policies for Limited Enrollment Programs:

a. Only one gateway or entrance requirement course may be repeated to earn the required grade and that course may be repeated only once;
b. A grade of W (Withdrawn) in a course in counted as an attempt;
c. Students may apply only once to an LEP. Students who have been dismissed from the major may not reapply;
d. Students must maintain a cumulative GPA of 2.00. Failure to do so will result in dismissal from the major.

Any student denied admission or dismissed from the major may appeal. Dismissed students appeal directly to the Director of Undergraduate Studies in Psychology (www.psychology.umd.edu). Internal transfer students appeal to the Office of the Dean for Behavioral and Social Sciences (www.bsos.umd.edu). External transfer students appeal to the Office of Admissions (www.umd.edu/admissions/).

Requirements for the Major

All students must complete at least 35 credits (11 courses) in Psychology. The required courses include PSYC 100, 200, at least two (3 credit) courses at the 400-level, and at least two laboratory (4 credit) courses at the 400-level (for a total of 14 credits at the 400 level).Laboratory courses include: PSYC 401, 407, 410, 420, 433, 440, 450. The following courses may not be included in the required 35 credits: PSYC 309A, 309C, 386, 478, and 479. In order to assure breadth of coverage, psychology courses have been divided into four areas. The 35 credit total must include at least two courses from two of the four areas and at least one course from each of the remaining areas. The areas and courses are:

	Required Psychology Courses
PSYC100	Introduction to Psychology
PSYC200	Statistical Methods in Psychology
	Two from:
PSYC401	Biological Bases of Behavior Laboratory
PSYC410	Experimental Psychology: Sensory Processes I
PSYC420	Experimental Psychology: Social Processes I
PSYC433	Basic Helping Skills: Research and Practice
PSYC440	Experimental Psychology: Cognitive Processes
PSYC450	Field Research in Organizational Psychology
	Psychology Area Courses
	At least one course in each of the four areas.
	At least two courses in two of the four areas.
	At least two 400-level (3 credit) courses
	Area I
PSYC	one course from PSYC 206, 301, 310, 401, 402, 403, 404, 406, 410
	Area II
PSYC	one course from PSYC 221, 341, 420, 423, 424, 440, 442, 443
	Area III
PSYC	one course from PSYC 318, 319, 332, 334, 337, 353, 354, 355, 356, 357, 432, 433, 434, 435, 436, 455, 456, 458
	Area IV
PSYC	one course from PSYC 336, 361, 450, 451 460, 463, 464, 465
	No Area
PSYC	415
	Supporting Course Sequence
	One from:
MATH111	Introduction to Probability
MATH140	Calculus I
MATH220	Elementary Calculus I
	One from:
BSCI105	Principles of Biology I
BSCI106	Principles of Biology II
CHEM131/132	Fundamentals of General Chemistry and Lab
PHYS121	Fundamentals of Physics I

** Note that BSC 103 does not satisfy the lab science requirement for the Psychology major and that a student cannot earn credit for both BSCI 103 and BSCI 105.*

A detailed psychology requirements worksheet and a detailed list of courses by area can be found at www.psychology.umd.edu.

A grade of C (2.0) or better must be earned in all 35 credits of psychology courses used for the major and all credits used to meet the Math-Science supporting course sequence. No course may be used as a prerequisite unless a grade of C is earned in that course prior to its use as a prerequisite. The prerequisite for any psychology laboratory course is completion of PSYC 200 and completion of the Math-Science supporting course sequence.

Students pursuing the Bachelor of Science degree option must complete a minimum of 5 courses/17 credits in mathematics and science. At least three courses must be advanced and at least two courses must contain a lab. The 5 course/17 credits must be completed with at least a 2.0 average. MATH 111, MATH 140, MATH 220, BSCI 105, BSCI 106, CHEM 131/132 and PHYS 121 may be used to satisfy part of the requirement for the B.S. degree. Students should consult the current Psychology Undergraduate website for a list of approved advanced Math-Science Courses.

Requirements for the Minor

Neurosciences

The Minor in Neurosciences will give the highly qualified and motivated undergraduate an opportunity to study Neuroscience. The emphasis includes study in systems, cognitive, and computational neuroscience in a manner that crosses the traditional boundaries of Psychology, Biological Sciences, and other related disciplines. The minor is most appropriate for students who already have a background in the biological sciences or psychology.

- All majors are eligible for the minor except students in the Physiology & Neurobiology (PHNB) track in Biological Sciences (BSCI).
- There are a number of science course prerequisites for the required and elective classes. Students should carefully review the prerequisites for all courses listed for the Neurosciences minor. A student without a sufficient science background may not be able to complete the minor in the allotted credits.
- Students may only count a maximum of two courses (6-8 credits) toward both their major degree requirements and the Minor in Neurosciences.

Eligibility and Application to the Minor

In order to apply for the Minor in Neurosciences, a student must have:

1. Completed at least 30 college credits and at least 15 credits at UM.

2. Earned at least a C (2.0 GPA) in BSCI105 and CHEM131&132 or have AP equivalents.
3. Earned at least a C (2.0 GPA) in PSYC301 or BSCI330.
4. Be in good academic standing.

Applications for the Minor in Neurosciences will be considered three times each year on October 1, March 1, and June 1. Students will be notified via email regarding the status of their application within three weeks of the submission deadline so that students will know whether or not they are accepted to the prior to early registration for the next semester.

Interested students may submit an application for the minor to the Undergraduate Psychology Office (BPS 1107). Applications are available on the Neurosciences and Cognitive Sciences (NACS) Program website at www.nacs.umd.edu.

Course Requirements

There are five required courses (11-14 credits) and two elective courses (6-8 credits) for a total of 17-22 credits to complete the minor. The five required courses and their prerequisites are listed below. A list of eligible electives can be found on the program website at www.nacs.umd.edu.

Required Courses	**Course**	**Prerequisites**
(5 courses, 11-14 credits)		
PSYC301 or BSCI453	PSYC301 Biological Basis of Behavior (3)	BSCI105, PSYC100
	BSCI453 Cellular Neurophysiology (3)	BSCI330, CHEM231/232, PHYS122
PSYC401 or BSCI454	PSYC401 Biological Basis of Behavior Lab (4)	BSCI105, PSYC200, PSYC301 or equiv.
	BSCI454 Neurophysiology Lab (1)	BSCI330, CHEM231/232, PHYS122
PSYC402 or BSCI446	PSYC402 Neural Systems (3)	PSYC206 or PSYC301
	BSCI446 Neural Systems (3)	BSCI330
PSYC403 or BSCI360	PSYC403 Animal Behavior (3)	PSYC206 or PSYC301
	BSCI360 Principles of Animal Behavior (3)	BSCI105, BSCI106, BSCI222
PSYC409	Topics in Neuroscience Seminar (1)	Permission of Instructor & Department

Advising

Academic Advising in Psychology is available each business day in the Undergraduate Psychology Office, Biology-Psychology Building Room 1107 (301-405-5866).

Walk-in advising: Monday through Friday 10am-noon.

Appointments: Call 301-405-5866 to schedule

Email advising: psycadvising@psyc.umd.edu

Undergraduate Research Experiences

Research experience is strongly encouraged for students who wish to pursue graduate training in psychology. The Undergraduate Psychology Office distributes opportunities for undergraduates to participate in research every semester. See www.psychology.umd.edu or contact a Psychology advisor for recent research postings. Many students find research opportunities on their own by approaching individual faculty members and graduate students with whom they share common research interests.

Freshmen and sophomore students can participate as a Maryland Student Researcher in the Maryland Center for Undergraduate Research (www.ugresearch.umd.edu/programs.html). Students participating in this program work individually with faculty members and earn a citation on their transcript for participation in the program.

Junior and senior students can earn academic credit for research participation (maximum of 9 credits) through PSYC479. Applications and requirements for PSYC479 are available from the Psychology Undergraduate Office.

Internships

Applications and requirements for Psychology Department Internships (PSYC386) are available from the Psychology Undergraduate Office.

Psychology majors also can enroll in BSOS College internship programs for internships not directly related to the field of Psychology (www.bsos.umd.edu).

Honors Program

The Honors Program in Psychology is designed to enrich and accelerate the acquiring of knowledge in the field. The goals of the honors program of the psychology department include:

- Educate students to think independently
- Provide opportunities for close, scholarly analysis of significant topics in psychology
- Encourage and provide opportunities for students to undertake research.
- Introduce students to a broad range of psychological ideas and issues

Program Overview:

A. *Honors Seminars:* These seminars make use of significant source works in psychology rather than textbooks that merely summarize source material. Seminars emphasize scholarly analysis, discussion and writing, rather than the lecture and multiple-choice exam format of most other undergraduate courses. The seminars are planned to cover a variety of the scholarly areas of psychology during each student's program.
B. *Research Apprenticeship*: A research experience with a member of the faculty whose work is of interest to the student. This apprenticeship may be informal at first, or it may be undertaken as a supervised field experience. In either case, it should culminate in a piece of original research that the student has designed,

executed and reported (the Honors Thesis).

C. *Psychology Courses*: A program of upper-level psychology courses that cover the major areas of psychology that were not covered in Honors Seminars.
D. *Advanced Courses*: A program of courses in mathematics and science that provide tools that the student can use in psychology and beyond.

Eligibility for the program:

- Students in good standing in the General Honors Program may be admitted to Psychology Honors at the beginning of the sophomore year, provided (1) a grade of "A" has been earned in PSYC 100 or 100H, (2) the mathematics prerequisite for PSYC 200 has been completed, and (3) the student's overall and psychology GPA are both at least 3.3.
- Other students may be admitted at the end of the sophomore year, or during the junior year, but in no case later than the sixth semester. Such students should have completed three courses in psychology, including PSYC 200, and must have a 3.3 GPA overall and in psychology.

Certain eligibility requirements may be waived in exceptional cases. Applications will be acted on by the Honors Committee.

Steps for Applying

1. Meet with the Director of Undergraduate Psychology to obtain an application form. Submit your application and personal statement indicating your reasons for applying to the Honors Program.
2. Upon receipt of your application you will be contacted for an interview with Dr. Thomas Wallsten, Department Chair and Honors Program Director.
3. Please bring a transcript to your interview (must have at least a 3.3 GPA).

More information is available on the Psychology department website.

Student Societies and Professional Organizations

The University of Maryland chapter of Psi Chi (Psychology Honor Society) meets regularly each term. Information about Psi Chi can be found on the board posted outside the Undergraduate Psychology Office (BPS 1107) or by emailing psichi@psyc.umd.edu.

Awards and Recognition

For more information about awards and recognition, please visit www.bsos.umd.edu/psyc/main/undergraduate/opportunities/awards.html.

PUBLIC AND COMMUNITY HEALTH (HLTH)

School of Public Health
2387 School of Public Health Building, 301-405-2463
www.dpch.umd.edu
bmonis@umd.edu
Chair: E. Glover
Professors: K. Beck, B. Boekeloo, P. Clark, R. Feldman, R. Gold, M. Wang
Associate Professors: S. Desmond, C. Holt, D. Howard, R. Sawyer, C. Voorhees
Assistant Professors: N. Atkinson, S. Daughters, K. Green, J. Rath
Instructors: D. Hyde
Lecturers: A. Anderson-Sawyer, G. Gilbert, M. Ko, K. Sharp
Professors Emeriti: J. Greenberg

The Major

Students graduate with a Bachelor of Science degree in Community Health which prepares students for entry-level health education positions in a variety of community health settings: worksite health promotion, research and development, hospitals, and health agencies.

Requirements for the Major

In addition to the University's CORE, students must fulfill four other general sets of requirements: General Electives, Supportive Requirements, Health Electives, and Professional Preparation. HLTH491, the Community Health Internship, is completed during the student's final semester and after all other course work has been successfully completed.

		Credits
	Community Health Major	**120**
	Supportive Requirements	**33**
HLTH130	Introduction to Public & Community Health	3
HLTH140	Personal and Community Health	3
HLTH200**	Introduction to Research in Community Health	3
HLTH230	Introduction to Health Behavior	3
BSCI105	Principles of Biology	4
BSCI201	Anatomy and Physiology I	4
BSCI202	Anatomy and Physiology II	4
EDMS451	Introduction to Educational Statistics	3
	One upper level course from any two departments: EDCP or EDHD or FMST ***required of all Community Health majors beginning Fall 2009. Current majors may use it as 1 of 6 Health Electives.*	6
	Health Electives	**18**
	Any 6 courses - No more than two experiential courses+	
HLTH106	Drug Use and Abuse	3
HLTH285	Controlling Stress and Tension	3
HLTH371	Communicating Health and Safety	3
HLTH377	Human Sexuality	3
HLTH38x	Peer Education +	3

HLTH400	Service / Learning in Health Education +	3
HLTH430	Health Education in the Workplace	3
HLTH437	Consumer Behavior	3
HLTH460	Minority Health	3
HLTH471	Women's Health	3
HLTH476	Death Education	3
SPHL400	Global Health	3
KNES360	Physiology of Exercise	3
HLSA287	Adult Health & Development+	3
NFSC100	Elements of Nutrition	3
SPHL400	Global Health	3
ELECT	General Electives	15
	(+Experiential courses: no more than 2)	
	Professional Preparation	**21**
HLTH391	Principles of Community Health I	3
HLTH420	Methods and Materials in Health	3
HLTH490	Principles of Community Health II	3
HLTH491	Community Health Internship	12

Advising

Advising is mandatory, please contact the Community Health Advisor, David H. Hyde. 2387 HLHP Building; 301-405-2463; dhyde1@umd.edu

Student Societies and Professional Organizations

Eta Sigma Gamma. The Epsilon chapter was established at the University of Maryland in May 1969. This professional honorary organization for health educators was established to promote scholarship and community service for health majors at both the graduate and undergraduate levels. Students may apply after two consecutive semesters with a 2.75 cumulative grade point average.

Romance Languages (ROML)

College of Arts and Humanities
3106 Jiménez Hall, 301- 405-4024
www.romancelanguages.umd.edu
langweb@umd.edu
:

Requirements for the Major

The BA in Romance Languages is undergoing revisions. Please contact Dr. Giuseppe Falvo for information. gfalvo@umd.edu.

The Romance Languages Program is intended for students who wish to specialize in two of the Romance languages: French, Italian, Spanish. Students selecting this major must take a total of 45 credits selected from courses in two of the three components listed below: French, Italian and Spanish. The first four courses listed under each group are required for that particular language component; exceptions or substitutions may be made only with the approval of the student's advisor in consultation with the Romance Languages advisor. 21 credits are taken in each of the two languages, as specified, and three additional credits are taken at the 400-level in either of the languages chosen. Literature or civilization courses may not be taken in translation. Students who wish to apply for Teacher's Certification should consult the College of Education.

Students must take language-acquisition courses sequentially. Once credit has been received in a higher-level language acquisition or grammar course, a lower-level course may not be taken for credit.

Requirements	French	Credits
FREN250	Introduction to French Literature	3
FREN301	Composition and Style	3
FREN351	From Romanticism to the Age of Modernism and Beyond	3
FREN352	From the Age of Epic and Romance to the Enlightenment	3
FREN4xx	two additional literature or civilization courses at the 400 level	6
ITAL204	**Italian** Review Grammar and Composition	3

ITAL211 or 251	Intermediate Conversation Aspects of Contemporary Italian Literature & Culture	3
ITAL301	Composition and Style	3
ITAL350	Readings in Italian Literature	3
ITAL4xx	three additional literature or civilization courses at the 400 level	9
	Spanish	
SPAN207	Reading and Writing in Spanish	3
SPAN301	Advanced Grammar and Composition I	3
SPAN331, 332 and 333 or SPAN361, 362 and 362	Spanish Culture, Civilization & Literature I, II and III **or** Latin American Literatures & Cultures I, II and III	9
SPAN4xx	two literature or civilization courses at the 400 level	6
All Majors: FREN/SPAN/ITAL	One additional 3-credit course at the 400 level in either of the two languages	3

Russian Language and Literature (RUSS)

3215 Jimenez Hall, 301- 405-4239
www.russian.umd.edu
:

The Major

The undergraduate major in Russian Language and Literature consists of 40 credits beyond the prerequisite of Elementary Russian (RUSS 101-102 or equivalent). Many students pursue a double major or double degree in Russian and another discipline, such as international relations, business, history, economics, journalism, engineering, etc. Russian students have the opportunity to live in St. Mary's Language House, and the majority of majors participate in study abroad. Native or heritage speakers wishing to enroll in Russian courses or major in Russian should consult the Undergraduate Advisor.

Requirements for the Major

The undergraduate major in Russian Language and Literature consists of 40 credits beyond the prerequisite of Elementary Russian (RUSS 101-102 or equivalent). Native or heritage speakers wishing to enroll in Russian courses or major in Russian should consult the Undergraduate Advisor.

Students must take language-acquisition courses sequentially. Once credit has been received in a higher-level language acquisition or grammar course, a lower-level course may not be taken for credit.

	Requirements	**Credits**
RUSS201	Intermediate Russian I	5
RUSS202	Intermediate Russian II	5
RUSS301	Advanced Russian I	3
RUSS302	Advanced Russian II	3
RUSS3xx	One additional course at the 300-level	3
RUSS401	Advanced Russian Composition	3
RUSS402	Practicum in Written Russian	3
RUSS4xx	One additional course at the 400-level	3
RUSS	Two RUSS electives	6
RUSS300/400	Two upper level RUSS electives*	6
	**must be taught in Russian*	

Notes: One supporting course outside the department (at the 300-level or above) may be counted toward the major with an advisor's prior approval.

Secondary Education, Upper Division Certificate

College of Education
2311 Benjamin Building, 301-405-6877
www.education.umd.edu/EDCI

The Certificate Program in Secondary Education is currently under review. Please see an advisor in EDCI for more information on this pathway and other pathways to certification.

SOCIOLOGY (SOCY)

College of Behavioral and Social Sciences
2108 Art/Sociology Building, 301-405-6389
www.bsos.umd.edu/socy
Chair: S. Bianchi
Professors: P. Collins, W. Falk, E. Fink, K. Finsterbusch, J. Hage (Director), L. Landry, A. Lareau, H. Presser, S. Presser, G. Ritzer, J. Robinson, D. Segal, M. Segal, R. Vanneman
Associate Professors: L. Dance, S. Desai, L. Hunt, J. Iceland, J. Kahn, M. Kestnbaum, R. Korzeniewicz, U. Larsen, J. Lengermann, J. Lucas, M. Milkie, A. Neustadtl, J. Pease
Assistant Professors: L. DeRose, D. Kim, L. Mamo, K. Marsh, S. Martin, J. Park
Lecturers: L. Moghadam (Undergraduate Director), S. Steele
Professors Emeriti: R. Clignet, E. Dager, R. Henkel, R. Hirzel, J. Hunt, K. Kammeyer, B. Meeker

The Major

Sociology is the scientific study of society and its institutions, organizations, and groups. By observing the broad range of activities in society, and exploring topics such as social class, race, gender, deviance, family, religion, the work place, and demographic trends, sociologists provide important information and perspectives on our social order and the causes and impacts of social change. Sociology provides important information useful both to personal life and public policy decisions. Sociology is among the broadest of the social sciences and is characterized by considerable pluralism in theoretical and methodological approaches, substantive specializations, and in units of analysis.

Students major in Sociology for a variety of reasons. Some emphasize sociology's relevance to understanding a broad range of social issues that interest them out of intellectual curiosity, personal life relevance, or usefulness for ameliorative social change efforts. Other majors emphasize acquisition of sociological knowledge and skills useful in a variety of career paths where understanding societal problems and trends, group dynamics, and personnel issues are critical. For a small core of majors the purpose of the undergraduate program is preparation and training for admissions to graduate programs and eventual careers as sociologists in teaching and research and/or policy development. Majors may also use sociology as a basis for graduate study in related fields, including law, social work, public policy, and human resource management.

Program Objectives

The overall goals of the program are:

- To provide meaningful and challenging courses within the University CORE program
- To provide meaningful and challenging courses as electives for non-majors
- To provide a coherent program of courses for Sociology majors which enables majors to attain:

  a) general sociological knowledge and understanding of our society;
  b) sociological knowledge and skills relevant to a variety of career paths,
  c) sociological knowledge and skills relevant to application to and success within competitive sociology graduate programs and careers; and
  d) to provide a Sociology Honors component for selected students who have the capability and motivation to work at the most challenging level.

Program Learning Outcomes

Having completed the degree program, students should have acquired the following knowledge and skills:

1. To be able to think critically and assess information about society using sociological concepts and a social science mode of argument.
2. To be confident in one's understanding of key questions addressed by the discipline and the ways in which social structure and social interaction shape human behavior. To feel competent to use research tools to conduct and assess research.
3. To understand the role of theory in the construction of sociological inquiry; for majors this entails knowing the central ideas of major classical and contemporary theorists.
4. To understand and be able to apply statistical concepts.
5. To understand the social science model of evidence and argument; for majors this entails familiarity with basic social science statistical techniques, basic methods of data analysis, basic methods of organizing and presenting information, and the ability to carry out a small research project.

Requirements for the Major

As part of the 120 credits and other requirements for a Bachelor of Arts degree, sociology majors must complete a minimum of 38 credits in Sociology and 12 credits in supporting courses outside of Sociology. All these credits must be completed with a minimum grade of 'C' or better in each course. The 38 credits in Sociology must include the following:

		Credits
	Required Courses	
	Basic Requirements	
SOCY100	Introduction to Sociology	3
SOCY201	Introductory Statistics for Sociology	4
SOCY202	Introduction to Research Methods in Sociology	4

SOCY203	Sociological Theory	3
	Breadth Requirement	**9**
	one course from three of the following concentration areas:	
	Family and Demography:	
SOCY410	Social Demography	
SOCY443	The Family and Society	
	Organizations and Institutions:	
SOCY431	Principles of Organizations	
SOCY443	The Family and Society	
SOCY460	Sociology of Work	
SOCY464	Military Sociology	
	Social Psychology:	
SOCY230	Sociological Social Psychology	
SOCY430	Social Structure and Identity	
	Stratification and Inequality:	
SOCY441	Social Stratification and Inequality	
	Depth Requirement	**9**
	At least three courses (including one required) in any one of the following concentration areas:	
	Family and Demography:	
SOCY410	Social Demography ***(Required)***	
SOCY411	Demographic Techniques	
SOCY412	Family Demography	
SOCY418*	Research in Family and Demography	
SOCY442	The Family and Social Class	
SOCY443	The Family and Society	
SOCY444	Sociology of Children	
	Organizations and Institutions:	
SOCY431	Principles of Organizations ***(Required)***	
SOCY425	Gender Roles and Social Institutions	
SOCY438*	Research in Organizations & Institutions	
SOCY443	The Family and Society	
SOCY456	Sociology of Consumerism	
SOCY460	Sociology of Work	
SOCY462	Women in the Military	
SOCY463	Sociology of Combat	
SOCY464	Military Sociology	
SOCY465	The Sociology of War	
SOCY467	Sociology of Education	
	Social Psychology:	
SOCY230	Sociological Social Psychology ***(Required)***	
SOCY402	Intermediate Procedures for Data Collection, **OR**	
SOCY430	Social Structure and Identity	
SOCY440	Sociology of the Self-Concept	
SOCY447	Small Group Analysis	
SOCY448*	Research in Social Psychology	
SOCY450	Measurement of Time, Work, and Leisure	
SOCY463	Sociology of Combat	
	Stratification and Inequality:	
SOCY441	Social Stratification and Inequality ***(Required)***	
SOCY325	The Sociology of Gender	
SOCY421	Women and Men in the World System	
SOCY422	Social Change in Latin America	
SOCY424	Sociology of Race Relations	

SOCY425	Gender Roles and Social Institutions	
SOCY428*	Research in Inequality	
SOCY442	The Family and Social Class	
SOCY462	Women in the Military	
SOCY467	Sociology of Education	
	Methods Requirement	**3**
SOCY	An intermediate methods course or research course selected from a list maintained by the Sociology Undergraduate Advising Office	
	Electives	**0-3**
	Elective course(s) in sociology sufficient to fill out the required minimum of 38 credits in sociology; may be selected from any of the sociology courses	
	Supporting Courses	**12**
	• Two supporting courses from approved list	6
	• Two supporting courses at the 400 level from approved list	6

**Special Topics courses, may be repeatable - see note below.*

Students should note the following in reference to Sociology requirements:

a) SOCY201 has a prerequisite of Math 111 or higher with a minimum grade of C;

b) some of the courses necessary to fulfill depth requirements and/or the methods/research course requirement may have prerequisites such as SOCY201, 202, and 203;

c) it is permissible to count one course as fulfilling more than one type of requirement, e.g. a course can be counted towards meeting a breadth requirement and a depth requirement, or a courses might be counted towards a depth requirement while simultaneously fulfilling the methods/research course requirement;

d) special topics courses (indicated with an * in the above lists) may be repeatable for credit if its content differs from when previously taken;

e) SOCY498 courses may be used to fulfill depth requirements for particular concentration areas when so designated by the Undergraduate Sociology Office; the Sociology Undergraduate Office maintains current lists of special topics courses (SOCY498) that fulfill depth requirements; and

f) each course counted as meeting sociology or supporting course requirements must be passed with a grade of C or better.

Advising

Regular advising is strongly recommended for all majors. Advising is particularly important for those majors who are considering going on to graduate school. Majors are reminded of the importance of taking the four basic required courses (SOCY 100, 201, 202, 203) as soon as possible because these are prerequisites for some upper level work. Further information on course work, internships, the department honors program, careers, and other topics may be obtained from the Sociology Undergraduate Advisor, 2108 Art/Sociology Building, 301-405-6389.

Internships

Although internships are not a requirement for a major, students may wish to consider the internship program offered by the department or through the Experiential Learning Office located in Hornbake Library. Majors may receive up to six credits in SOCY386 when an internship/volunteer position is combined with an academic project. A prerequisite of 12 credit hours in Sociology course work is required. Sociology internship credit does not count toward meeting requirements for the major.

Honors Program

The Sociology Honors Program seeks to encourage and recognize superior scholarship by providing an opportunity for interested, capable, and energetic undergraduate students to engage in study in an area of the student's interest under the close supervision of a faculty mentor. The honors program is based upon tutorial study and independent research.

Students who have an overall cumulative grade point average of at least 3.3, a cumulative average of 3.5 in Sociology courses, and who have taken at least nine credits in Sociology may apply. Transfer students with equivalent academic records at other accredited institutions are also eligible. Admission to the program will be based upon academic performance and the judgment of the Undergraduate Committee whether the applicant has sufficient maturity and interest to complete successfully the requirements for graduation with Honors. Further information on the honors program is available from the Sociology Undergraduate Office.

Student Societies and Professional Organizations

The Sociology Collective, open to all Sociology majors, is organized by a group of interested undergraduates to fill student needs within the Sociology community. The Collective provides information about topics of interest, including department activities, career planning, and relevant changes within the university, and strives to enhance the sense of community within the department. Representatives of the Collective participate in many faculty committees within the department and thereby provide the undergraduate perspective on policy issues.

Alpha Kappa Delta is the National Honor Society for Sociology majors. Membership is based on Sociology GPA (3.0 minimum) and overall GPA (3.0 minimum). Students may apply after they have completed 18 hours of Sociology course work. This organization's activities focus on providing tutoring services for undergraduates in core courses.

Spanish (SPAN)

College of Arts and Humanities
2215 Jiménez Hall, 301- 405-6441
www.spanish.umd.edu
:

Requirements for the Major

The undergraduate major in Spanish Language, Literatures, and Cultures consists of 36 credits of coursework beyond the intermediate prerequisite level, with an additional supporting area (nine credits). All students will take a core of four courses and a three course literature/culture sequence focused on Spain or Latin America; the remaining coursework will come from one of three options: Literature and Culture, Linguistics and Culture, Language and Culture in Professional Contexts.

Prerequisites: 11 credits (or equivalent knowledge)
Note: Students who receive a grade of B+ or above in SPAN203 can proceed directly to SPAN207.

SPAN103 Intensive Elementary Spanish (4 credits)
SPAN203 Intensive Intermediate Spanish (4 credits)
SPAN204 Review of Spanish Grammar (3 credits)

Core sequence: 21 credits (required for all three options)

SPAN207	Reading and Writing	*Prereq: SPAN203 with a grade of B+ or higher or SPAN204 or concurrent SPAN204; or equivalent knowledge*	3
SPAN301	Advanced Grammar & Composition I	*Prereq: SPAN207 or concurrent 207*	3
SPAN302	Advanced Grammar&Composition II	*Prereq: SPAN301*	3
SPAN303	Approaches to Cultural Materials in the Hispanic World	*Prereq: SPAN207*	3
SPAN331 **and**	Spanish Culture, Civilization and Literature I: Medieval Times	*Prereq: SPAN301 and 303*	9
SPAN332 **and**	Spanish Culture, Civilization and Literature II: Renaissance and Baroque	*Prereq: SPAN301 and 303*	
SPAN333	Spanish Culture, Civilization and Literature III: Modern Times	*Prereq: SPAN301 and 303*	
	- or -		
SPAN 361 **and**	Latin American Literatures and Cultures I: From Pre-Columbian to Colonial	*Prereq: SPAN301 and 303*	9
SPAN362 **and**	Latin American Literatures and Cultures II: From Independence to Nation Formation	*Prereq: SPAN301 and 303*	
SPAN363	Latin American Literatures and Cultures III: From Modernism to Neo-liberalism	*Prereq: SPAN301 and 303*	

Literature and Culture option: 15 credits. This option provides greater expertise in Spanish or Latin American literature and culture (three 400-level courses minimum). Students can choose either 2 commercial Spanish classes OR 2 translation classes OR two additional 400-level literature classes.

SPAN 4xx SPAN4xx SPAN316 SPAN318	Two 400 level courses in Spanish or Latin American Literature and Culture **-- or --** Practicum in Translation I Translation of Technical Texts **-- or --**	*prereq: one from SPAN331, 332, 333, 361, 362, 363 literature sequence above Prereq: SPAN301and SPAN303 Prereq: SPAN316*	6
SPANxx SPANxx SPANxx	Three 400 level courses in Spanish or Latin American Literature and Culture	*Prereq: one from SPAN331, 332, 333,361, 362, 363 literature sequence above*	9

Linguistics and Culture option: 15 credits. This option provides greater expertise in Hispanic linguistics (three upper-level courses). Language and Culture in Professional Contexts This option combines business courses with translation courses to provide a better understanding of professional language contexts.

SPAN310	Spanish Phonetics	*Prereq: SPAN301 and SPAN303*	3
SPAN425 &	Intro Hispanic Linguistics I	*Prereq: SPAN301 and SPAN303*	3
SPAN426	Intro Hispanic Linguistics II	*Prereq: SPAN425*	3
SPANxx **and** SPANxx	Two 400 level courses in Spanish or Latin American Literature and Culture*	*Prereq: one from SPAN331, 332, 333,361, 362, 363 literature sequence above*	6
			15

**The approved program in Spanish and Secondary Education requires 2 upper-level courses in literature/culture along with the three linguistics courses this option provides.

Language and Culture in Professional Contexts: 15 credits. This option combines business courses with translation courses to provide a better understanding of professional language contexts.

SPAN315 &	Commercial Spanish I	*Prereq: SPAN301 and 303*	3
SPAN415	Commercial Spanish II	*Prereq: SPAN315*	3

SPAN316 &	Practicum in Translation I	*Prereq:SPAN301 & 303*	3
SPAN318	Translation of Technical Texts	*Prereq: SPAN316*	3
SPAN422 **or**	Cross-cultural Communication -- **or** --	*Prereq: SPAN315*	3
SPAN4xx	one 400-level course in Spanish or Latin American Literature and Culture	*Prereq: one from SPAN331, 332, 333,361, 362, 363 literature sequence*	

Supporting Area: 9 credits in a single area other than Spanish, 6 of which must be at the 300 or 400 level, all with the approval of the Spanish advisor. Students should discuss their choice of supporting area with the Spanish advisor early on in their Spanish studies.

Courses for Heritage Learners: Heritage learners and students from homes where Spanish is spoken or who have had in-depth exposure to Spanish take a series of courses designed to enhance their skills:

SPAN206	Review of Oral and Written Spanish for Native Speakers Educated in the US	*Prereq: Native or near native knowledge of oral Spanish and no formal education in Spanish*
SPAN306	Spanish II for Native Speakers	*Prereq: SPAN306*
SPAN307	Oral Communication Skills for Native Speakers of Spanish	*Prereq:Native or near native knowledge of oral Spanish and no formal education in Spanish*

- Placement in courses for heritage learners is determined by speaking with the Spanish advisor.
- Native speakers and all others with the ability to begin coursework at a higher level should speak with the undergraduate advisor for course substitutions.

Study Abroad

All students majoring in Spanish Language, Literatures, and Cultures are encouraged to study abroad in a Spanish-speaking environment. The program advisor will review all proposed course sequences before the study abroad experience and determine equivalencies after official transcripts have been received by UM (students should expect to present samples of work done abroad to advisor).

Special Education (EDSP)

College of Education
1308 Benjamin, 301-405-6515/4
www.education.umd.edu/EDSP/
Chair: P. Burke (Prof & Chair)
Professors: P. Beckman, A. Egel, P. Leone, J. Lieber, M. McLaughlin, S. Moon, D. Neubert, D. Speece
Associate Professors: F. Kohl, S. De La Paz, P. Maccini
Assistant Professors: W. Drakeford, R. Silverman
Lecturers: E. Aiello, M. Brown, A. Danehey, C. Fink, D. Greig, B. Gruber, B. Merchant, P. Ulf, S. Williams
Professors Emeriti: J. Hebeler

The Major

The Special Education Department offers an innovative and rigorous combined undergraduate/master's program which prepares teachers of infants, children, or young adults with disabilities. This program has been nationally recognized for many of its exemplary features. It is a five-year (10-semester, 150-credit hour) professional certification program which graduates students with a Bachelor of Science and Master of Education degree in special education, leading to special education teacher certification in the State of Maryland and certification reciprocity in other states throughout the country. Students considering a special education major enroll in courses which meet university and college requirements while they take supporting course work designed to provide an understanding of typical human development and basic psychological and sociological principles of human behavior. Special Education students receive specialized training in the following areas: language development; motor development; social-emotional development; typical human behavior; social and educational needs of individuals with disabilities; diagnostic and educational assessment procedures; instructional procedures and materials; curriculum development; classroom and behavior management; effective communication with the parents and families of children with disabilities; community resource planning; and local, state, and federal laws concerning children and youth with disabilities. Graduates of the program are expected to master specific skills in each of these areas.

Program Learning Outcomes

1. Content Knowledge: Special education teacher candidates have in-depth knowledge of the subject matter that they teach as described in professional (Council for Exceptional Children -- CEC), state (MSDE), and institutional standards. They demonstrate their knowledge through inquiry, critical analysis, and synthesis of the subject.

2. Pedagogical and Professional Knowledge, Skills, and Dispositions: Special education teacher candidates can effectively plan classroom-based instruction or activities for their roles as special educators. Candidates' knowledge, skills, and dispositions are applied effectively in practice.

3. Effects on Student Learning: Special education teacher candidates accurately assess and analyze student learning, make appropriate adjustments to instruction, monitor student learning, and have a positive effect on learning for all students.

4. Professional Dispositions: Special education teacher candidates are able to work with students, families, and communities in ways that reflect the dispositions expected of professional educators as delineated in professional (CEC), state (MSDE), and institutional standards.

5. Competency on the Maryland Teacher Technology Standards: Special education teacher candidates demonstrate proficiency in each of the seven *Maryland Teacher Technology Standards*.

Academic Programs and Departmental Facilities

Combined Bachelor's/Master's Program

Qualified undergraduate students majoring in special education will be eligible for dual application of credit to both the bachelor's and master's degrees. Students apply for admission to the Graduate School during the last semester of the third year. Students admitted to the Graduate School take 12 credits (four courses) of specified course work during the fourth year of the undergraduate program to be applied simultaneously toward the master's degree in special education at the Universit University of Maryland. The selected courses may not include field practica or student teaching experiences. Students fulfill supplemental graduate requirements in the selected courses. To complete the master's degree, students must fulfill all additional Graduate School requirements for the degree in the program's fifth year.

Admission to the Major

Prior to formal acceptance as a special education major, all students are required to enroll in a special education introductory course (EDSP 210) which provides a survey of the history and current issues in special education. Upon successful completion of the introductory course and 45 semester hours of requirements, students apply for formal admission to the professional program of the Department of Special Education by submitting an application with a statement of intent specifying their professional goals. To be accepted as a full special education major, students must fulfill the College of Education requirements for admission to Teacher Education, as well as the following departmental conditions:

1. Completion of course work indicated below:
HIST156 or 157, STAT100, Lab Science, ENGL Literature, PSYC100, SOCY100 or 105, HESP202, MATH212, EDHD 411 or PSYC355, EDHD Elective (See Department for approved list), EDSP 210.
2. Admission is competitive beyond the minimum 2.5 grade point average required for consideration.
3. Submission of an application together with a statement of intent specifying the applicant's professional goals.
4. Submission of three letters of recommendation.
5. Completion of College of Education Foundational Competencies/Technical Standards Acknowledgment Form.

Admittance will be based on the completion of the required courses, the grade point average, the applicant's experience with persons with disabilities, and the appropriateness and clarity of the professional goal statement. An appeals process has been established for students who do not meet the competitive GPA for admission, but who are applying in connection with special university programs including affirmative action and academic promise.

Requirements for the Major

Students interested in majoring in Special Education must consult a departmental advisor as early as possible after matriculation at the university since the curriculum requires an extensive and sequenced program of studies. Students accepted as Special Education majors take a two-semester sequence of foundation special education courses and practicum experiences during the third year (Semesters V and VI). These courses provide the student with a solid foundation in theory and practice related to the education of all children with disabilities across a wide range of ages.

Students work directly with children or youth with disabilities during each semester, leading up to student teaching during the last semester.

		Credits
	Required Courses	
	All preprofessional and professional course work must be completed with a grade of C or better prior to student teaching. CORE Liberal Arts and Science Studies Program Requirements include the following courses which are departmental requirements: (Consult with a departmental advisor with regard to USP requirements.)	
HIST156	History of the United States to 1865, **or**	3
HIST157	History of the United States since 1865	3
STAT100	Elementary Statistics and Probability	3
SCI	Lab Science	4
ENGL	ENGL Literature	3
PSYC 100	Introduction to Psychology	3
SOCY 100/	Introduction to Sociology, **or**	3
SOCY105	Introduction to Contemporary Social Problems	3
	Other Academic Support Courses	
HESP202	Introduction to Hearing and Speech Sciences	3
MATH212	Elements of Numbers and Operations	3
EDHD411/	Child Growth and Development, **or**	3
PSYC355	Child Psychology	3
EDHD	EDHD Elective (See Department for approved list)	3
	Professional Courses	
EDSP210	Introduction to Special Education	3
EDCI385	Computers for Teachers	3
EDHD425	Language Development and Reading Acquisition	3
EDPS301	Foundations of Education	3
EDSP403	Instruction of Students with Physical Disabilities	3
EDSP406	Field Placement I: Special Education	1
EDSP407	Field Placement II: Special Education	3
EDSP413	Behavior and Classroom Management in Special Education	3
EDSP415	Assessment in Special Education	3
EDSP416	Reading and Writing Instruction in Special Education I	3

Specialty Area Requirements

The Early Childhood Special Education Option

EDSP400/602	Functional Assessment & Instruction in Special Education	3
EDSP484	Reading and Writing Instruction in Special Education II	3
EDSP420/626	Characteristics of Infants & Young Children: Early Childhood Special Education	3
EDSP481	Cultural Diversity and Disability	3
EDSP421	Field Placement III: Early Childhood Special Education	4
EDSP423/624	Assessment in Early Childhood Special Education	3
EDSP430/631	Early Intervention: Early Childhood Special Education	3
EDSP424	Field Placement IV: Early Childhood Special Education	4
ELECT	Major Elective (see Department for approved list)	3
EDSP627	Curriculum and Instruction: Early Childhood Special Education	3
EDSP687	Family Partnerships in Special Education	3
EDSP604	Education of Students with Autism	3
EDSP691	Graduate Internship in Special Education I: Early Childhood	4
EDSP690	Teacher Candidate Research Seminar in Special Education	3
EDSP694	Graduate Internship in Special Education II: Early Childhood	11

The Elementary Special Education Option

EDSP400/602	Functional Assessment & Instruction in Special Education	3
EDSP484	Reading and Writing Instruction in Special Education II	3
EDSP451/652	Curriculum & Instruction: Elementary Special Education	3
EDSP452	Field Placement III: Elementary Special Education	4
EDSP481	Cultural Diversity and Disability	3
EDSP410/614	Community-Based Assessment & Curriculum in Special Education	3
ELECT	Major Elective (see Department for approved list)	3
EDSP485/683	Assessment and Instruction in Mathematics in Special Education	3
EDSP454	Field Placement IV: Elementary Special Education	4
EDSP687	Family Partnerships in Special Education	3
EDSP654	Assessment in Elementary Special Education	3
EDSP604 **or** EDSP622	Education of Students with Autism **or** History, Research, and Context in Behavioral and Learning Disorders	3
EDSP692	Graduate Internship in Special Education I: Elementary	4
EDSP690	Teacher Candidate Research Seminar in Special Education	3
EDSP695	Graduate Internship in Special Education II: Elementary	11

The Secondary/Middle Special Education Option

EDSP400/602	Functional Assessment & Instruction in Special Education	3
EDSP466/664	Issues and Models: Secondary/Middle Special Education	3
EDHD426	Cognition and Motivation in Reading: Reading in Content Areas I	3
EDSP434	Field Placement III: Secondary/Middle Special Education	4
EDSP410/614	Community-Based Assessment & Curriculum in Special Education	3
EDSP474/674	Assessment in Secondary/ Middle Special Education	3
EDSP481	Cultural Diversity and Disability	3
EDSP485	Assessment and Instruction in Mathematics in Special Education	3
EDSP677	Curriculum, Assessment, & Instruction in Secondary/Middle Special Education	3
EDSP687	Family Partnerships in Special Education	3
EDSP682	Advanced Literacy Approaches for At-Risk Adolescents	3
EDSP690	Teacher Candidate Research Seminar in Special Education	3
EDSP693	Graduate Internship in Special Education I: Secondary/Middle	4
EDSP696	Graduate Internship in Special Education II: Secondary/Middle	11

Requirements for the Minor

The minor in Special Education provides opportunities for undergraduate students to enroll in a sequence of education courses to determine if working with students with disabilities is a viable career option. For students interested in pursuing this career option, a one-year M.Ed. program, leading to certification as a special educator, is also available.

- 18 credits are required for this minor
- Two courses (6 credits) may overlap with a student's major
- Students pursuing the minor must select one of three age-based specializations: Early Childhood, Elementary, or Secondary Special Education.
- The minor incorporates coursework to meet the *Maryland State Department of Education (MSDE) reading requirements* that are part of the special education teacher certification requirements.
- A cumulative 2.5 GPA and junior status (60 credits) is required for enrollment in all professional education courses (i.e., all courses required for the minor except EDSP 210/470).
- All courses for the minor must be passed with a grade of "C" or better.

- No more than two courses (6 credits) may be taken at an institution other than the University of Maryland.

Core Courses required for the Minor:

EDSP210/470	Introduction to Special Education
EDSP413	Behavior & Classroom Management in Special Education
EDSP415	Assessment in Special Education
EDSP416	Reading & Writing Instruction in Special Education I

Additional Courses Required for Early Childhood Special Education:

EDHD425	Language Development & Reading Acquisition
EDSP423	Assessment in Early Childhood Special Education

Additional Courses Required for Elementary Special Education:

EDHD425	Language Development & Reading Acquisition
EDSP485	Assessment & Instruction in Mathematics in Special Education

Additional Courses Required for Secondary Special Education:

EDHD426 **or** EDCI463	Cognition & Motivation in Reading: Reading in Content Areas **or** Reading in the Secondary School
EDSP485	Assessment & Instruction in Mathematics in Special Education

Minor and M.Ed. Teacher Certification Program

For students interested in pursuing special education teacher certification, a one year M.Ed. program is available after completing the 18-hour minor in special education and an undergraduate degree. To be admitted to this M.Ed. Special Education program, students must apply to the graduate school (www.gradschool.umd.edu) during their senior year and pass the Praxis I at scores established by the Maryland State Department of Education www.education.umd.edu/studentinfo/praxis.html. All teacher candidates at the University of Maryland must pass **Praxis I and Praxis II** prior to student teaching.

Students seeking a minor in special education must first meet with the EDSP Teacher Preparation Coordinator. For further information or to declare a Minor in Special Education please contact Dr. Dawn Molloy, 1235 Benjamin Bldg, 301-405-6485 or dmolloy@umd.edu.

Advising

The Department of Special Education provides academic advisement through a faculty and a peer advisement program. Special Education majors are assigned a faculty advisor, who is carefully matched to the student's area of interest. It is required that all students consult an advisor each semester. Students are urged to use the Special Education Advising Center, 1235 Benjamin Building. For additional information, please contact Dr. Dawn Molloy at 301-405-6485 or dmolloy@umd.edu.

Fieldwork Opportunities

Integrated field experiences are arranged for students throughout the professional portion of the program, years 3 through 5. Field experiences allow teacher candidates to apply concepts and techniques presented in university-based courses. For further information, please contact Lynn Brown, Director of Clinical Experiences, at 301-405-6468 or brownml@umd.edu.

Internships

The yearlong internship, which is the culminating experience in the teacher preparation program, takes place in a collaborating school (i.e., partner school, PDS -- Professional Development School).

Student Societies and Professional Organizations

The Department of Special Education encourages student participation in extracurricular activities within and outside of the University. Opportunities within the department include the Council for Exceptional Children. For more information, stop by the Special Education Advising Center, 1235 Benjamin Building.

Scholarships and Financial Assistance

The Special Education Endowed Fund in honor of Jean R. Hebeler is devoted to support students preparing to work with individuals with disabilities. Awards are competitive. Applications are accepted in the spring semester for the following academic year.

In addition, the Office of Student Financial Aid (OSFA) administers all types of federal, state and institutional financial assistance programs and, in cooperation with other university offices, participates in the awarding of scholarships to deserving students. For information, visit: www.financialaid.umd.edu.

Awards and Recognition

The Department of Special Education Student Service Award is presented annually to the graduating intern who has demonstrated outstanding leadership and service to the Special Education Department.

Speech Communication

See the Department of Communication.

Statistics

For information consult the entry under Mathematical Statistics Program in Chapter 7.

THEATRE (THET)

College of Arts and Humanities
2806 Clarice Smith Performing Arts Center, 301-405-6676
www.theatre.umd.edu
thetinfo@umd.edu
Chair: D. Wagner
Professors: M. Hebert, F. Hildy, H. Huang, S. Reese
Associate Professors: D. Conway, H. Nathans, C. Schuler
Assistant Professors: F. Carpenter, L. Felbain, M. Kachman, L. Frederik Meer, L. Smiley
Instructors: D. Kriebs
Professors Emeriti: P. Gillespie, R. Meersman, W. Patterson, R. Pugliese
Visiting Faculty: W. Dallas (Sr Art-In Res)

The Major

Small classes, diversity, and a close-knit environment promote a strong sense of community within the Department of Theatre. An extensive production schedule offers students a myriad of opportunities to practice their craft. The Department is a supportive and stimulating environment that fosters creative development and spurs achievement. Our comprehensive curriculum embraces the liberal arts approach to theatre study and cultivates skills-discipline, creativity, self-confidence, and critical thinking-that are valuable in all career fields. Students gain a strong foundation in theatre arts and have the opportunity to tailor the degree to their strengths and interests. Our performance and design/production faculty members are active in their fields (members of Actors Equity and United Scenic Artists), providing students a vital link to the world of professional theatre. Our history/theory faculty members regularly publish and participate at national and international conferences. Situated in close proximity to the vibrant Washington/Baltimore theatre communities, students have ready access to the best of contemporary and classical productions at more than 80 professional theatres. Through professional affiliations with many of these theatre companies, students enjoy unique opportunities such as internships, workshops, partnership projects and blended productions. An audition, portfolio, or interview is not required for admission to the program. Courses offered by this Department may be found under the following acronym(s): THET, AASP, HONR, JAPN, JWST, WMST, ANTH.

Program Objectives

The Department of Theatre offers a balanced, liberal arts education that integrates production, design, and scholarship. The B.A. in Theatre seeks to introduce students to the history, theory, and literature of theatre; to offer them insights into the cultural diversity that has shaped the creation of theatrical forms around the world; to allow them to develop their own aesthetic sensibilities and their own perspectives as artist and audience member; and to offer them practical training in the areas of theatre craft, from design to directing to performance.

Program Learning Outcomes

By the end of their undergraduate work students should be able to demonstrate fundamental knowledge of theatre performance, design, history, craft and literature analysis. They will also be able to demonstrate critical and creative thinking skills and the ability to communicate with written and spoken word and artistic vision. Students will also develop the ability to interpret and analyze dramatic texts with critical understanding of content and methodology. They will expand their awareness of the basic methods and principles for creating a dialogue between theory and practice. Finally, students will develop the ability to work effectively within a collaborative environment.

Academic Programs and Departmental Facilities

The Department of Theatre is housed in the Clarice Smith Performing Arts Center, a state-of-the-art performing arts "village" comprised of ten interconnected structures occupying 318,000 square feet and situated on a 17-acre site at the northwest end of the campus. The Center is designed to serve the theatre, music and dance programs of the University and also houses the Michelle Smith Performing Arts Library. With 30 classrooms, 50 practice and rehearsal rooms, and fully outfitted costume, electric, scenic production, paint and properties shops, the Center serves more than 5,000 students, 200 faculty and staff and numerous regional, national and international audiences and professionals. For further information visit the Clarice Smith Performing Arts Center website at http://claricesmithcenter.umd.edu/2009.

Placement in Courses

Many Theatre performance and production courses above the Freshman level require an audition and/or permission of the Department.

Requirements for the Major

Requirements for the College of Arts and Humanities include a minimum of 45 upper-level credits and a foreign language requirement.Students in the Theatre major prior to fall 2009 should consult the Department for prior curriculum requirements.

Major requirements include 55 credits of course work in Theatre. 46 credits of these must be THET and 9 Supporting Courses may come from approved courses outside the unit. Of the 55 credits, at least 28 credit hours must be upper level (300-400 series). No course with a grade less than "C" may be used to satisfy major or supporting area requirements. No course for the major may be taken Pass/Fail.

	FOUNDATION SERIES:
THET114	Fundamentals of Theatre Craft
THET116	Fundamentals of Design
THET222	Foundations of Acting and Performance
THET223	Text and Context
THET479	Production Practicum (1 credit repeated four times)

**Foundation Series courses may be taken in any sequence.*

**THET 114, THET116, one credit of THET479, and either THET222 or THET223 must be completed by the end of the second semester or 30 credits.*

**THET 479 (4 - 1 credit courses for a total of 4 credit hours) cannot be taken until THET 114 is completed.*

**THET 479 must be completed in 3 different areas - costume, scenic, lighting and sound*

**Students are expected to complete one THET 479 course by the end of the 2nd semester or 30 credits, and all 4 courses by the end of the 6th semester or 90 credits.*

AREA MENU:

Students must take courses from each Area as delineated below. Students may enter the Area Menu after completing appropriate prerequisites.

Performance Area: *courses marked with an * require an audition. Students may only audition twice for each course requiring an audition for enrollment.*

THET210	Movement for Actors
THET310	Voice for the Actor I*
THET324	Acting: Character Development*
THET325	Acting: The Actor's Process Part I*
THET330	Play Directing I
THET411	Voice for the Actor II*
THET420	Acting IV: Language and the Actor*
THET424	Movement II: Advanced Studies in Movement for the Actor*
THET425	Acting: The Actor's Process Part II*
THET430	Play Directing II
THET451	Musical Theatre Workshop I*
THET452	Musical Theatre Workshop II*

Design/Production Area:

Some courses require departmental or instructor approval

THET273	Theatre Graphics I
THET282	Stage Makeup
THET284	Stage Costume Construction I
THET371	Scenic Design I
THET372	Stage Property Design
THET373	Rendering for the Theatre I
THET377	Lighting Design I
THET380	Sound Design
THET383	Costume Design I
THET384	Stage Costume Construction II
THET457	Advanced Lighting Technology
THET465	History of Fashion for the Theatre
THET470	Advanced Stage Craft
THET471	Design Studio in Scenery
THER472	Scene Painting
THET473	Rendering for the Theatre II
THET474	Stage Management
THET475	History of Art, Architecture, and Décor for the Theatre
THET477	Design Studio in Lighting
THET481	Theatre Graphics II
THET482	Scene Painting II
THET483	Design Studio Costume

History/Theory Area:

6 credits must be at the 400 level

THET250	American Musical Theatre and Popular Culture
THET290	American Theatre 1750 to 1890
THET291	American Theatre 1890-Present
THET293	Black Theatre and Performance I
THET294	Black Theatre and Performance II
THET388	Special Topics in Performance Studies
THET488	Special Topics in Theatre History Before 1800
THET489	Special Topics in Theatre History from 1800 to Present

All seminars offered at the 400/600 level require undergraduate students to obtain permission from the instructor and to have completed either THET 488 or 489. This includes: THET408/608, THET410/610, THET486/686, THET487/608, THET498/698.

SUPPORTING COURSES:

12 Supporting courses must come from THET courses; 15 credits of Supporting Courses must be upper level (300-400) coursework. Supporting course credits may come from the Performance, Design/Production, or History/Theory Area menus OR any combination of the four menus. Students may also petition to their advisor for other suitable courses to be accepted, conditional on course work relating to their area of focus. For course prerequisites contact the Department that is offering the course or check Testudo online.

For a complete listing of Supporting Courses check the Undergraduate page of the Theatre website at www.theatre.umd.edu.

Other Requirements for the Major

As the Area and Supporting Course Menus do not require specific course choices, students may select courses according to their interests and abilities. In consultation with their advisor, students may choose to tailor their degree and create a focus in a specific area of interest to prepare them for the profession or entrance to graduate school.

Advising

The College of Arts and Humanities has a dual advising system where students meet with college advisors to discuss their general education requirements and departmental advisors to discuss the major requirements. The Department of Theatre requires mandatory advising each semester to keep in touch with our student base and assist majors and double majors with curricular and co-curricular choices. Advising procedures and instructions to sign up for an advising appointment can be found on the Theater website at www.theatre.umd.edu/Undergraduate.

Scholarships and Financial Assistance

Scholarships and financial assistance may be awarded to prospective and enrolled students through a number of Creative and Performing Arts (CAPA) Scholarships, Theatre Patrons Fund Scholarships and other Theatre Named scholarships. For further information visit the Theatre website at www.theatre.umd.edu/Undergraduate. The Office of Student Financial Aid (OSFA) administers all types of federal, state and institutional financial assistance programs and, in cooperation with other university offices, participates in the awarding of scholarships to deserving students. For information, visit: www.financialaid.umd.edu.

Awards and Recognition

At the spring Theatre commencement ceremony, the Charles B. Hale Award is presented to the two members of the senior class who have done the most for the advancement of dramatic art while undergraduates at the University of Maryland.

Women's Studies (WMST)

College of Arts and Humanities
2101 Woods Hall, 301-405-6877
www.womensstudies.umd.edu
womensstudies@umd.edu
Chair: B. Dill (Prof & Chair)
Professors: A. Bolles, C. Moses, D. Rosenfelt, R. Zambrana
Associate Professors: E. Barkley Brown, S. Kim, K. King
Assistant Professors: J. McCune, M. Rowley
Affiliate Professors: M. Beasley (Journalism), S. Bianchi (Sociology), J. Chernela (Anthropology), T. Coletti (English), M. Collins (Comparative Literature), P. Collins (Sociology), S. Cypess (Spanish & Portuguese), J. Donawerth (English), E. Frederiksen (Germanic Studies), J. Fuegi (Comparative Literature & Culture), G. Gullickson (History), J. Hallett (Classics), L. Kauffman (English), S. Michel (History), C. Mossman (French & Italian), R. Oster (Germanic Studies), C. Peterson (English), H. Presser (Sociology), E. Scholnick (Psychology), M. Segal (Sociology), M. Smith (English), L. Steiner (Journalism), N. Stromquist (International and Comparative Education), N. Struna (American Studies), E. Toth (Communication), M. Vaughan (History), M. Washington (English)
Affiliate Associate Professors: L. Aldoory (Communication), S. Desai (Sociology), L. Doherty (Classics), J. Freidenberg (Anthropology), M. Geores (Geography), M. Grossman (Jewish Studies), S. Harley (African American Studies), S. Jelen (English), H. Kerkham (History), L. Leslie (Family Studies), J. Letzter (Germanic Studies), J. Lin (Ed. Policy & Leadership), M. Lindemann (English), J. Liu (Asian & East European), S. Logan (English), C. Lyons (History), M. Mayo (History), M. Milkie (Sociology), R. Muncy (History), Z. Nunes (English), K. O'Brien (Psychology), V. Orlando (French & Italian), M. Paolisso (Anthropology), S. Parks (American Studies), S. Parry-Giles (Communication), P. Peres (Spanish & Portuguese), S. Ray (English), A. Rodriguez (Spanish & Portuguese), L. Rosenthal (English), C. Schuler (Theatre), M. Sies (American Studies), G. Sorenson (Aff Res Assoc Prof), E. Stehle (Classics), G. Strauch (Germanic Studies), M. Tonn (Communication), F. Wilson (African American Studies), M. Zilfi (History)
Affiliate Assistant Professors: F. Carpenter (Theatre), M. Chico (English), L. DeRose (Sociology), C. Eades (French & Italian), L. Felbain (Theatre), C. Hanhardt (American Studies), G. Jones (Asian and East European), S. Khamis (Communication), M. Liu (Asst Prof), L. Mamo (Sociology), K. Marsh (Sociology), E. Marshall (Curriculum & Instruction), M. Mason (Languages, Literature and Culture), L. Frederik Meer (Theatre), C. North (Education Leadership), R. Ontiveros (English), J. Schultz (Kinesiology), J. Wasilewski (History), P. Williams-Forson (American Studies)
Professors Emeriti: E. Beck (Prof Emerita)
Visiting Faculty: A. Kimmich (Visit Asst Prof)

The Major

The Women's Studies major offers students a coherent but flexible program of study examining scholarship and theory on the history, status, contributions, and experiences of women in diverse cultural communities, and on the significance of gender as a social construct and as an analytical category. The B.A degree prepares students for positions in a wide range of fields, for example in government and in policy, research and service organizations that focus on women's issues. Courses offered by this department may be found under the following acronym: WMST.

Requirements for the Major

Students will earn a total of 39-42 credit hours, distributed as indicated below. Drawing from approximately fifty courses, many of which are cross-listed with other academic units, students will have the opportunity to design an emphasis within the major relevant to their special interests. A number of courses may count in more than one category. At least 30 credits must be at or above the 300 level. No course with a grade less than C may be used to satisfy the major. Students will design their programs in consultation with a Women's Studies advisor.

	Foundation Courses (18 credit hours)	**Credits**
WMST200	Introduction to Women's Studies: Women and Society, **OR**	3
WMST250	Introduction to Women's Studies: Women, Art & Culture	3

WMST300	Feminist Reconceptualizations	3
WMST350	Feminist Education Practicum and Analysis, **OR**	6
WMST380	Women's Studies Field Work and Analysis	6
WMST400	Theories of Feminism	3
WMST488	Senior Seminar	3

Distributive Courses

Area 1: Arts and Literature (3 credit hours)

WMST241	Women Writers of French Expression in Translation *(X-listed as FREN241)*	3
WMST250	Introduction to Women's Studies: Women, Art, and Culture	3
WMST255	Introduction to Literature by Women *(X-listed as ENGL255)*	3
WMST275	World Literature by Women *(X-listed as CMLT 275)*	3
WMST281	Women in German Literature and Society *(X-listed as GERM281)*	3
WMST348	Literary Works by Women *(x-listed as ENGL348)*	3
WMST408	Special Topics in Literature by Women before 1800 *(X-listed as ENGL 408)*	3
WMST444	Feminist Critical Theory *(X-listed as ENGL 444)*	3
WMST448	Special Topics in Literature by Women of Color* *(X-listed as ENGL448)*	3
WMST458	Special Topics in Literature by Women after 1800 *(X-listed as ENGL458)*	3
WMST466	Feminist Perspective on Women in Art *(X-listed as ARTH466)*	3
WMST468	Feminist Cultural Studies	3
WMST481	Femmes Fatales and the Representation of Violence in Literature *(X-listed as FREN481)*	3
WMST496	African -American Women Filmmakers* *(X-listed as THET49*6)	3
FREN482	Gender and Ethnicity in Modern French Literature	3

Area II: Historical Perspectives (3 credit hours)

WMST210	Women in America to 1880 *(X-listed as HIST 210)*	3
WMST211	Women in America Since 1880 *(X-listed as HIST 211)*	3
WMST212	Women in Western Europe, 1750-present *(X-listed as HIST212)*	3
WMST320	Women in Classical Antiquity *(X-listed as CLAS 320)*	3
WMST453	Victorian Women in England, France, and the United States *(X-listed as HIST 493)*	3
WMST454	Women in Africa* *(X-listed as HIST 494)*	3
WMST455	Women in Medieval Culture and Society *(X-listed as HIST495)*	3
WMST456	Women in the Middle East*	3
WMST457	Changing Perceptions of Gender in the US: 1880-1935 *(X-listed as HIST 433)*	3
AASP498W	Black Women in United States History*	3
AMST418J	Women and Family in American Life	3
HIST309	Proseminar in Historical Writing: Women's History	3

Area III: Social and Natural Sciences (3 credit hours)

WMST200	Introduction to Women's Studies: Women and Society	3
WMST313	Women and Science *(X-listed as BSCI 313)*	3
WMST324	Communication and Gender *(x-listed as COMM 324)*	3
WMST325	Sociology of Gender *(X-listed as SOCY 325)*	3
WMST326	Biology of Reproduction *(X-listed as BSCI 342)*	3
WMST336	Psychology of Women *(X-listed as PSYC 366)*	3
WMST360	Caribbean Women*	3
WMST410	Women in the African Diaspora*	3
WMST420	Asian-American Women*	3
WMST425	Gender Roles and Social Institutions	3
WMST430	Gender Issues in Families *(X-listed as FMST 430)*	3
WMST436	Legal Status of Women *(X-listed as GVPT 436)*	3
WMST452	Women and the Media *(X-listed as JOUR 452)*	3
WMST471	Women's Health *(X-listed as HLTH 471)*	3
WMST493	Jewish Women in International Perspective*	3
WMST494	Lesbian Communities and Difference*	3
AASP498F	Special Topics in Black Culture: Women and Work*	3
CCJS498	Special Topics in Criminology and Criminal Justice: Women and Crime	3
SOCY498W	Special Topics in Sociology: Women in the Military	3

**Fulfills Women's Studies Multi-Cultural Requirement*

Courses in Cultural Diversity (6 credit hours)

Approved courses are noted with an asterisk in Distributive Courses section above. Courses in this category may overlap with other requirements.

Student-Developed Emphasis (9 credit hours)

Each student, with the help of the Academic advisor, will design an emphasis relevant to their special interests. Courses will ordinarily be drawn from the more than 50 courses approved for the major; in some instances, students may secure permission to include other courses.

Electives

Students should select their electives from the full list of courses for the major. The number of credit hours will vary depending on the individual student's program, but should bring the total number of semester credit hours to at least 39.

Requirements for the Minor

Joint Minor in Black Women's Studies

College of Arts and Humanities
2101 Woods Hall, 301-405-6877
www.umd.edu/wmst

College of Behavioral and Social Sciences
2169 Lefrak Hall
www.bsos.umd.edu/aasp

See African American Studies Department or Women's Studies Department for faculty roster.

The joint minor in Black Women's Studies focuses on the lives and experiences of women of Africa and the African Diaspora. As a specialty in the fields of Women's Studies and African American Studies, it will provide students with tools for understanding the social and cultural contexts in which race, gender, class, sexuality, ethnicity, nation and other dimensions of difference intersect to influence the lives and experiences of Black women.

Fifteen (15) credits of coursework are required, distributed below. A number of courses may count in more than one category. No course with a grade less than C may be used to satisfy the minor. Students will design their program in consultation with the Women's Studies or African American Studies advisor. No more then two courses may count toward a major in African American Studies or Women's Studies.

Foundation courses (6 credits)
WMST263/AASP203 Introduction to Black Women's Studies or
WMST265/AASP213 Constructions of Manhood and Womanhood in the Black Community
AASP313/WMST314 Black Women in U.S. History

Distributive Requirements (9 credits)
Area I - Comparative or Non-US Course - indicated by a * below (3 credits)
Area II - Humanities (3 credits)

WMST263/AASP203 Introduction to Black Women's Studies
THET240 African Americans in Film and Theater
*ENGL362 Caribbean Literature in English
*FREN478B Themes and Movements of French Literature in Translation: Francophone Women Writers

Area III - Social Sciences (3 credits)

WMST265/AASP213 Constructions of Manhood and Womanhood in the Black Community
HIST319 Women and the Civil Rights Movement
*WMST360 Caribbean Women
*WMST410 Women of the African Diaspora
WMST488 Senior Seminar: Black Women in the Public Eye
AASP493 Feminist and Nationalist Thought in the Black Community
WMST498 Black Feminist Thought WMST498 Womanisms and Feminisms: Theories and Methods
AASP483 Gender, Sexuality and the Black Family

Minor in U.S. Latina/o Studies

College of Arts and Humanities
1208 Cole, 301-405-2931
www.umd.edu/wmst

The Minor, which requires a total of 15 credits, is intended for students who wish to develop a specialization in U.S. Latina/o Studies alongside their degree pursuits. It is optimal for students engaged in work with U.S. Latina/o communities in a variety of professions and academic fields including history, literature, education, urban studies and planning, health care, social services, business, government, public policy, among others.

Requirements (15 credits)

A. Two Lower-Level Foundation Courses (6 credits) - All students are required to take the two foundational courses:

USLT 201/U.S. Latina/o Studies I: An Historical Overview to 1960s
USLT 202/US. Latina/o Studies II: A Contemporary Overview, 1960s-Present.

B. One Upper-Level Course (3 credits)

All students are required to take the upper-level course: USLT 488/Senior Seminar in U.S. Latina/o Studies

C. Two Upper Level Elective Courses (6 credits)

In addition to the three required foundational courses, students will select two elective courses in consultation with the USLT advisor:

One from each of two of the following categories: Humanities, Social Sciences, Languages, and Education.

For these electives, students can choose USLT 498/Special Topics in U.S. Latina/o Studies and from a list of pre-approved courses offered through other departments or programs. Elective courses will explore the historical, cultural, political, economic, and sociological dimensions ofU.S. Latina/o experiences. These courses will be approved by the faculty advisory committee. Additional courses that include comparative U.S. Latino content, such as in LASC or GVPT, would be eligible for inclusion in the minor with the approval of the USLT advisor.

Certificate

The Women's Studies Certificate Program consists of an integrated, interdisciplinary curriculum on women that is designed to supplement a student's major. Any student in good standing may enroll in the certificate program by declaring her/his intention to the Women's Studies office. To qualify for a certificate in Women's Studies, a student will be required to earn 21 credits in Women's Studies courses, nine of which must be at the 300/400 level. See certificate requirements in Chapter 7 under "Other for Credit Programs."

Advising

Advising is mandatory for all majors each semester.

Internships

As part of the major, students are required to complete an internship in WMST380. Located near Washington, DC., students seek internship opportunities in local, state and federal governments, non-profit organizations, policy and research institutions as well as agencies committed to social change. Student internship sites have included: League of Women Voters of Maryland, National Organization for Women, Washington Jewish Women's Project, Institute for Women's Policy Research, Asian Pacific Islander Domestic Violence Resource Project, State of Maryland Lt. Governor's Office, D.C. Rape Crisis Center and the National Women's Studies Association.

Honors Program

The Honors Program is designed to give students the opportunity to pursue rigorous interdisciplinary research and writing under the close supervision and mentorship of a Women's Studies faculty member. Students can be expected to gain a deeper understanding of the field and the critical thinking and writing skills to excel in graduate or professional school or in management level positions in the professional workforce.

Student Societies and Professional Organizations

Iota, Iota, Iota (Triota) if the Women's Studies Honor Society. This organization strives to maintain feminist values of egalitarianism, inclusiveness, and the celebration of the diversity of women's experiences that are central to Women's Studies. Triota works to promote student research and activism in socio-political issues that effect all minority groups and aims to recognize and promote the academic achievements of Women's Studies students.

Scholarships and Financial Assistance

The Office of Student Financial Aid (OSFA) administers all types of federal, state and institutional financial assistance programs and, in cooperation with other university offices, participates in the awarding of scholarships to deserving students. For information, visit: www.financialaid.umd.edu.

Awards and Recognition

Women's Studies annually recognizes students for outstanding academic achievement and contributions to improving the lives of women and girls through community engagement.

Women's Studies Certificate

College of Arts and Humanities
2101 Woods Hall, 301-405-6877
www.womensstudies.umd.edu
womensstudies@umd.edu

See Women's Studies Department for faculty roster.

The Women's Studies Certificate Program consists of an integrated, interdisciplinary curriculum on women that is designed to supplement a student's major. Any student in good standing may enroll in the certificate program by declaring her/his intention to the Women's Studies Undergraduate Advisor. For additional information contact the Women's Studies office, 301-405-6827.

Requirements for Certificate

To qualify for a certificate in Women's Studies, a student will be required to earn 21 credits in Women's Studies courses, nine of which must be at the 300/400 level. No more than three credit hours of special topics courses may be counted toward the certificate. No more than nine credits which are applied toward a major may be included in the certificate program. No more than nine credit hours may be taken at institutions other than the University of Maryland. Each student must obtain a grade of C or better in each course that is to be counted toward the certificate. Of the 21 credits, courses must be distributed as follows:

1. Requirements for the Certificate

	Foundation Courses (9 credit hours)
WMST200	Introduction to Women's Studies: Women and Society, OR
WMST250	Introduction to Women's Studies: Women, Art & Culture
WMST400	Theories of Feminism
WMST488	Senior Seminar

2. Distributive Courses

	Area I: Arts and Literature (3 credit hours)
WMST241	Women Writers of French Expression in Translation (X-listed as FREN241)
WMST250	Introduction to Women's Studies: Women, Art, and Culture
WMST255	Introduction to Literature by Women (X-listed as ENGL255)
WMST275	World Literature by Women (X-listed as CMLT 275)
WMST281	Women in German Literature and Society (X-listed as GERM281)
WMST348	Literary Works by Women (x-listed as ENGL348)
WMST408	Special Topics in Literature by Women before 1800 (X-listed as ENGL 408)
WMST444	Feminist Critical Theory (X-listed as ENGL 444)
WMST448	Special Topics in Literature by Women of Color* (X-listed as ENGL448)

WMST458	Special Topics in Literature by Women after 1800 (X-listed as ENGL458)
WMST466	Feminist Perspective on Women in Art (X-listed as ARTH466)
WMST468	Feminist Cultural Studies
WMST481	Femmes Fatales and the Representation of Violence in Literature(X-listed as FREN481)
WMST496	African -American Women Filmmakers* (X-listed as THET 496)
FREN482	Gender and Ethnicity in Modern French Literature
	Area II: Historical Perspectives (3 credit hours)
WMST210	Women in America to 1880(X-listed as HIST 210)
WMST211	Women in America Since 1880 (X-listed as HIST 211)
WMST212	Women in Western Europe, 1750-present (X-listed as HIST212)
WMST320	Women in Classical Antiquity (X-listed as CLAS 320)
WMST453	Victorian Women in England, France, and the United States (X-listed as HIST 493)
WMST454	Women in Africa* (X-listed as HIST 494)
WMST455	Women in Medieval Culture and Society (X-listed as HIST495)
WMST456	Women in the Middle East*
WMST457	Changing Perceptions of Gender in the US: 1880-1935 (X-listed as HIST 433)
AASP498W	Black Women in United States History*
AMST418J	Women and Family in American Life
HIST309	Proseminar in Historical Writing: Women's History
	Area III: Social and Natural Sciences (3 credit hours)
WMST200	Introduction to Women's Studies: Women and Society
WMST313	Women and Science (X-listed as BSCI 313)
WMST324	Communication and Gender (x-listed as COMM 324)
WMST325	Sociology of Gender (X-listed as SOCY 325)
WMST326	Biology of Reproduction (X-listed as BSCI 342)
WMST336	Psychology of Women (X-listed as PSYC 366)
WMST360	Caribbean Women*
WMST410	Women in the African Diaspora*
WMST420	Asian-American Women*
WMST425	Gender Roles and Social Institutions
WMST430	Gender Issues in Families (X-listed as FMST 430)
WMST436	Legal Status of Women (X-listed as GVPT 436)
WMST452	Women and the Media (X-listed as JOUR 452)
WMST471	Women's Health (X-listed as HLTH 471)
WMST493	Jewish Women in International Perspective*
WMST494	Lesbian Communities and Difference*
AASP498F	Special Topics in Black Culture: Women and Work*
CCJS498	Special Topics in Criminology and Criminal Justice: Women and Crime
SOCY498W	Special Topics in Sociology: Women in the Military

*Fulfills Women's Studies Multi-Cultural Requirement

3. Courses in Cultural Diversity (6 credit hours)
Students will select one course for a minimum of 3 credit hours. Approved courses are noted with an asterisk in section 2, above. Courses in this category may overlap with other requirements.

4. Remaining Courses
The remaining courses may be chosen from any of the three distributive areas or from among any of the WMST courses including WMST 298 or 498: Special Topics and WMST 499: Independent Study.

Advising
To obtain more information, contact the Undergraduate Advisor, 301-405-6827, or write to the Women's Studies Department, 2101 Woods Hall, University of Maryland, College Park, MD 20742
Course Code: WMST

Zoology

Courses in zoology are offered by the Department of Biology.

Minors

Actuarial Mathematics

Mathematics(MATH)
1117 Mathematics Building, 301-405-5053
www.math.umd.edu

The Department of Mathematics offers a minor in Actuarial Mathematics for students whose majors are not mathematics. The goal of the minor in Actuarial Mathematics is to provide the student with an introduction to statistics in general and actuarial mathematics in particular. This minor is closely related to the minor in Statistics, but its focus is on actuarial mathematics.

16 credits are required for the minor as outlined below:

- MATH241 (4 credits)
- One pair of the following 3-credit courses: (for a total of 6 credits)
  - STAT400/401 or
  - STAT410/420 or
  - STAT410/401
- MATH461(3 credits)
  - *Note: MATH240 (4 credits) may be substituted for MATH461*
- STAT470 (3 credits)
- Recommended: MATH424 and/or STAT430

Other issues related to coursework:

- The minor in Actuarial Mathematics is NOT open to Mathematics majors.
- The student will need to achieve at least a C (2.0) in each course required for the minor.
- A student may use a maximum of 2 courses to satisfy the requirements of both a major and a minor in Actuarial Mathematics.
- No more than one of the courses for the minor in Actuarial Mathematics may be taken at an institution other than the University of Maryland, College Park.

Agribusiness Economics

Agricultural and Resource Economics (AREC)
2200 Symons Hall, 301-405-1291
www.arec.umd.edu

This minor provides students with economic knowledge and analytical skills to apply to real world problems in agribusiness. The 400 level courses are a truncated version of the upper-level course requirements of the AREC major. These courses focus particularly on economic analysis relevant to business decisions. AREC 250 is an introductory course giving students an overview of the subject.

		Credits
AREC250	Elements of Agricultural & Resource Economics	3
AREC404	Applied Price Analysis	3
AREC405	Economics of Production	3
AREC425	Economics of Food Sector	3
AREC435	Commodity Futures and Options	3
	Another AREC course can be substituted for one of the courses listed above with permission of the Undergraduate Advisor.	
	Total Credits	**15**

Ancient Greek Language and Literature

School of Languages, Literatures and Cultures (SLLC)
www.classics.umd.edu

This minor introduces students to ancient Greek and enables them to read, in Greek, important works of Greek literature. This minor requires 21 credits, consisting of the following courses:

GREK101	Elementary Ancient Greek I	4
GREK102	Elementary Ancient Greek II	4

GREK201	Intermediate Ancient Greek	4
GREK301	Scenes from Athenian Life	3
GREK4xx	Either Greek Philosophers, Greek Tragedy or Homer	3
CLASxx	A Classics course at the 300 or 400 level such as CLAS374 (Greek Tragedy) or CLAS330 (Greek Religion)	3
		21

Students interested in pursuing this minor should consult with the Undergraduate Advisor in the Department of Classics.

Arabic

School of Languages, Literatures, and Cultures (SLLC)
www.arabic.umd.edu

The minor in Arabic (21 credits) provides a solid grounding in Modern Standard Arabic. Students who satisfy the requirements of the minor in Arabic can expect to be able to read and write and communicate orally in Modern Standard Arabic at a level that would allow them to interact with native speakers, to engage with authentic texts, and to write connected text of paragraph length. The materials used to further language acquisition are culturally rich resources, and students completing the minor will have become familiar with many of the cultural patterns, social issues, historical events, artistic traditions, and elements of daily life of the people whose cultures are rooted in Arabic. Students interested in pursuing the minor in Arabic should contact the undergraduate advisor, who will be responsible for oversight and record keeping. Students should declare the minor in Arabic at least one year prior to graduation.

Prerequisites (12 credits):

		Credits
ARAB 104	Elementary Modern Standard Arabic I-II	6
ARAB 105	Elementary Modern Standard Arabic III-IV	6

No prerequisites are required for students with equivalent knowledge.

Courses required for Minor (21 credits):

All prerequisites imply "or equivalent knowledge."

		Prerequisite	**Credits**
ARAB204	Intermediate Modern Standard Arabic I	ARAB105	6
ARAB205	Intermediate Modern Standard Arabic II	ARAB 204	6
ARAB304	Advanced Modern Standard Arabic	ARAB 205	3
ARAB305	Advanced Modern Standard Arabic	ARAB 304	3
ARABXXX	Additional upper level course taught in Arabic* **Contact the minor advisor for approved courses*		3
			21

Notes:

- Because Modern Standard Arabic is primarily used for written communication, students are encouraged to complement their study of Modern Standard Arabic with courses in Egyptian dialect.
- Once credits have been received for a higher-level language focus course, a lower-level course in the same strand (written or spoken) may not be taken for credit. (For example, ARAB204 may not be taken after ARAB205)
- In cases where a student has equivalent knowledge, required courses are replaced in consultation with minor advisor. All courses applied to the minor must be taught in Arabic.
- Students who begin their study as heritage speakers must seek the advice and written permission of the advisor before choosing the courses they will use to replace any required minor courses.
- A maximum of 6 credits can be applied to the minor from courses taken at other institutions. No more than 6 credits of the minor may be used to satisfy the requirements of a major. No courses in the minor may count toward another minor.
- All courses presented for the minor must be passed with a grade of 2.0 or better.

Art History

Art History and Archaeology (ARTH)
1211-B Art/Sociology Building, 301-405-1479
www.arthistory.umd.edu

The minor in Art History introduces students to a range of art-historical periods, problems, and methodologies and is intended at once to broaden and deepen the student's knowledge of arts and humanities. A total of 18 credits is required.

1. Nine credits of 200-level surveys in the history of art are required. Choose any three (3) broad surveys from among the following 3-credit courses:

- ARTH 200: Art of the Western World to 1300
- ARTH 201: Art of the Western World after 1300
- ARTH 250: Art and Archaeology of Ancient America
- ARTH 275: Art and Archaeology of Africa
- ARTH 290: Arts of Asia

2. In addition, nine (9) credits of upper-level art history courses are required. Choose any three (3) upper-division (300- or 400-level) 3-credit courses in Art History (ARTH prefix).

A total of six (6) credits may be transferred into the minor from other institutions or programs. These transferred credits include those from study-abroad programs. Study-abroad credit requires the prior approval of the Director of Undergraduate Studies.

All courses presented for the minor must be passed with a grade of C or better.

Asian American Studies

Office of Undergraduate Studies
1120 Cole Student Activities Building, 301-405-0996
www.aast.umd.edu
aast@umd.edu

The Asian American Studies Program (AAST) provides students with the opportunity to study critically the experiences of Asian Americans. Through an interdisciplinary approach, students examine the histories, communities and cultures of Asian Americans as both distinctive from and connected to the broader themes for diversity, ethnicity, race, gender and migration in the Americas. 15 credit hours are required for the minor.

A. AAST Core Courses (6 credits):

1. Introduction to Asian American Studies (AAST 200)
2. Asian American History and Society (AAST 201)

B. Upper-level Courses (6 credits): In addition to the two required foundational courses, students will also select *two* additional upper-level (300/400) courses, one of which would be at the 400 level, from the following list of regular and special topics courses: AAST 384, AAST 388, AAST398A, AAST 398D, AAST 398L, AAST 398P/HIST 319P, AAST 420/WMST 420, AAST 424/SOCY 424, AAST 498A/EDCP 498A, AAST 498B, AAST 498C/HIST 419J, AAST 498D, AAST 498E, AAST 498F, AAST 498G, AAST 498I/EDCP 418A, AAST 498J, AAST 498K, AAST 498L, AAST 498M/AMST 418N, AAST 498N and AAST 498P.

C. The final requirement for the Minor is the successful completion of AAST 378 (Experiential Learning - 3 credits), a semester-long internship at an organization that centers its efforts on Asian American issues. Such organizations may include governmental units, non-profit agencies, and on-campus organizations.

Astronomy

1204 Computer and Space Sciences Building, 301-405-3001
www.astro.umd.edu

A Minor in Astronomy may be earned by completing the following with grades of C or better. An appointment must be made to register for the minor before final 30 credits are taken. Please contact Department for complete rules and procedures.

		Credits
ASTR100	Introduction to Astronomy, **or**	3
ASTR101	General Astronomy, **or**	4
ASTR1--	any other Introductory sequence in Astronomy	
ASTR 220	Collisions in Space	3
	Three from:	
ASTR300	Stars and Stellar Systems	3
ASTR330	Solar System Astronomy	3
ASTR340	Origin of the Universe	3
ASTR380	Life in the Universe - Astrobiology	3
ASTR498	Special Problems in Astronomy	3
CRSxx	Or a course approved by the department	3

Atmospheric Chemistry

Atmospheric and Oceanic Science (ATMOS)
3417 Computer and Space Sciences Building, 301-405-5391
www.atmos.umd.edu

This Minor will provide the students with a general background in Meteorology as offered by the lower level required courses, and a background on issues in Atmospheric Chemistry. This Minor track is intended for students who might pursue careers where background in Atmospheric Chemistry is needed, such as Air Pollution, Atmospheric Chemistry, and environmental issues. It is aimed at students that might consider graduate work in Atmospheric Chemistry, or prepare them for a very favorable job market in the Washington area, where a background in Meteorology can be an important asset. Students attempting this minor will need a strong background in mathematics, Physics and Chemistry at the level of MATH 240 or 461, PHYS 270 and PHYS 271, CHEM 481 (preferred) or CHEM 103, which are prerequisites for the required courses. Students interested in taking this Minor program should contact the Undergraduate Advisor in the Department of Meteorology. This Minor is not open to students who major in Physical Sciences with a concentration in Meteorology, or who major in Physics within the Meteorology Physics area of concentration.

A total of 15 credits is required. All courses presented for the Minor must be passed with a grade of "C" or better.

The students must choose two electives from:

- METO 123 Global Change
- METO 200 Weather and Climate
- Any METO 400 level course offered below as elective

The following two courses are required:

- METO 431 Meteorology for Scientists and Engineers I
- METO 434 Air Pollution

One elective from:

- CHEM 474 (Environmental Chemistry)
- GEOL 471 (Geochemical Methods of Analysis)
- Other 400 level courses offered in the Department of Meteorology on a regular basis or from a list of non-permanent electives that will be offered by Research Scientists, regular faculty from Meteorology, or members of the Earth System Science Interdisciplinary Center (ESSIC)
- Courses offered by the Department of Geography and Geology such as:

GEOG 446 (Applied Climatology)
GEOG 447 (Advanced Biogeography)
GEOG 472 (Remote Sensing)
GEOL 437 (Global Climate Change: Past and Present)
GEOL 452 (Watershed and Wetland Hydrology)

Atmospheric Sciences

Atmospheric and Oceanic Science (ATMOS)
3417 Computer and Space Sciences Building, 301-405-5391
www.atmos.umd.edu

This minor will provide a general background in meteorology as offered by the lower level courses, and a solid background in Atmospheric Physics (METO 431) and Atmospheric Dynamics (METO 432), as offered b two required courses. It is aimed at students that might consider graduate work in Meteorology, or prepare them for the very favorable job market in the Washington area, where a background in Meteorology can be an important asset. Students attempting this minor will need as strong background in Mathematics, Physics and Chemistry at the level of MATH 240 or 461, PHYS 270 and PHYS 271; CHEM 103, which are prerequisites for the required courses. Student interested in taking this Minor program should contact the undergraduate advisor in the Department of meteorology for advisement. This minor is not open to students who major in Physical Sciences with a concentration in meteorology, or who major in Physics within the Meteorology Physics area of concentration.

This Minor will require 15 credits. All courses presented for the Minor must be passed with a grade of "C" or better.

The students must choose two electives from:

- METO 123 Global Change
- METO 200 Weather and Climate
- METO 400 The Atmosphere

The following two courses are required:

- METO 431 Meteorology for Scientists and Engineers I
- METO 432 Meteorology for Scientists and Engineers II

One elective from:

- Other 400 level courses offered in the Department of Meteorology on a regular basis or from a list of non-permanent electives that will be offered by Research Scientists, regular faculty from Meteorology, or members of the Earth System Science Interdisciplinary Center (ESSIC)
- Courses offered by the Department of Geology and Geography, such as:
  - GEOL 437 Global Climate Change: Past and Present
  - GEOL 452 (Watershed and Wetland Hydrology)
  - GEOG 446 Applied Climatology
  - GEOG 447 Advanced Biogeography
  - GEOG 472 Remote sensing

Black Women's Studies

Joint Minor in Black Women's Studies
College of Arts and Humanities
2101 Woods Hall, 301-405-6877
www.umd.edu/wmst

College of Behavioral and Social Sciences

2169 Lefrak Hall
www.bsos.umd.edu/aasp

The joint minor in Black Women's Studies focuses on the lives and experiences of women of Africa and the African Diaspora. As a specialty in the fields of Women's Studies and African American Studies, it will provide students with tools for understanding the social and cultural contexts in which race, gender, class, sexuality, ethnicity, nation and other dimensions of difference intersect to influence the lives and experiences of Black women.

Fifteen (15) credits of coursework are required, distributed below. A number of courses may count in more than one category. No course with a grade less than C may be used to satisfy the minor. Students will design their program in consultation with the Women's Studies or African American Studies advisor. No more then two courses may count toward a major in African American Studies or Women's Studies.

Foundation courses (6 credits)
WMST263/AASP203 Introduction to Black Women's Studies or
WMST265/AASP213 Constructions of Manhood and Womanhood in the Black Community
AASP313/WMST314 Black Women in U.S. History

Distributive Requirements (9 credits)
Area I - Comparative or Non-US Course - indicated by a * below (3 credits)
Area II - Humanities (3 credits)

WMST263/AASP203 Introduction to Black Women's Studies
THET240 African Americans in Film and Theater
*ENGL362 Caribbean Literature in English
*FREN478B Themes and Movements of French Literature in Translation: Francophone Women Writers

Area III - Social Sciences (3 credits)

WMST265/AASP213 Constructions of Manhood and Womanhood in the Black Community
HIST319 Women and the Civil Rights Movement
*WMST360 Caribbean Women
*WMST410 Women of the African Diaspora
WMST488 Senior Seminar: Black Women in the Public Eye
AASP493 Feminist and Nationalist Thought in the Black Community
WMST498 Black Feminist Thought WMST498 Womanisms and Feminisms: Theories and Methods
AASP483 Gender, Sexuality and the Black Family

Chinese Language

School of Languages, Literatures and Cultures (SLLC)
www.chinese.umd.edu

The 15-credit minor in Chinese language will provide students with a sophisticated understanding of Chinese linguistic knowledge and an upper-level Chinese language skill. Students attempting this minor will need a strong background in Chinese at the level of Chinese 101 and CHIN102/103, which are prerequisites for some of the required courses. This minor will be of particular relevance to students with broad interest in learning Chinese language. Students interested in taking this minor program should contact the Chinese advisor in the Department of Asian and East European Languages and Literatures of the School of Languages, Literatures, and Cultures.

Requirements

A: Four 3-credit language courses from among the following - **12 credits**

CHIN201	Intermediate Spoken Chinese I
CHIN202	Intermediate Written Chinese I
CHIN203	Intermediate Spoken Chinese II
CHIN204	Intermediate Written Chinese II
CHIN205	Intermediate Chinese - Accelerated Track
CHIN207	Linguistic Resources for Students of Chinese
CHIN301	Advanced Chinese I
CHIN302	Advanced Chinese II
CHIN305	Life in China through TV Plays I
CHIN306	Life in China through TV Plays II
CHIN321	Classical Chinese I
CHIN401	Readings in Modern Chinese I
CHIN402	Readings in Modern Chinese II
CHIN403	(number has been changed to CHIN321)
CHIN404	(number has been changed to CHIN408)
CHIN408	Classical Chinese II
CHIN411	Business Chinese I
CHIN412	Business Chinese II
CHIN413	Advanced Conversation and Composition
CHIN415	Readings in Current Newspapers and Periodicals
CHIN431	Translation and Interpretation I
CHIN432	Translation and Interpretation II
CHIN441	Traditional Chinese Fiction
CHIN442	Modern Chinese Fiction

B: One 3-credit linguistics-oriented course from the following - **3 credits**

CHIN421	Sounds and Transcriptions of Mandarin Chinese
CHIN422	Advanced Chinese Grammar
CHIN423	Chinese Historical Phonology
CHIN424	Linguistics of the Chinese Writing System
CHIN428	Selected Topics in Chinese Linguistics

- The course CHIN 331 "Chinese Calligraphy: Theory and Practice" may not be used for the Chinese major or minor.
- Students must receive a "C" or better in all courses used for the minor. 9 of the 15 credits must be upper-level courses.
- No more than six of the fifteen credits toward the minor may be taken at an institution other than UMCP.

Chinese Studies

School of Languages, Literatures and Cultures (SLLC)
www.chinese.umd.edu

The minor in Chinese Studies will provide students with a basic Chinese language skill and a sophisticated understanding of Chinese literature, history, and culture. This minor will be of particular relevance to students with broad interest in learning Chinese culture. Students interested in taking this minor program should contact the Chinese advisor in the Department of Asian and East European Languages and Literatures of the School of Languages, Literatures, and Cultures.

Courses required for this minor are:

A. 6 credits of Chinese language course study at any level, based upon students' level of proficiency. Courses may be selected from among the following:

CHIN101	Intensive Elementary Chinese I
CHIN102	Elementary Spoken Chinese
CHIN103	Elementary Written Chinese
CHIN105	Elementary Chinese - Accelerated Track
CHIN201	Intermediate Spoken Chinese I
CHIN202	Intermediate Written Chinese I
CHIN203	Intermediate Spoken Chinese II
CHIN204	Intermediate Written Chinese II
CHIN205	Intermediate Chinese - Accelerated Track
CHIN207	Linguistic Resources for Students of Chinese
CHIN301	Advanced Chinese I
CHIN302	Advanced Chinese II
CHIN305	Life in China through TV Plays I
CHIN306	Life in China through TV Plays II
CHIN321	Classical Chinese I
CHIN401	Readings in Modern Chinese I
CHIN402	Readings in Modern Chinese II
CHIN403	(number has been changed to CHIN321)
CHIN404	(number has been changed to CHIN408)
CHIN408	Classical Chinese II
CHIN411	Business Chinese I
CHIN412	Business Chinese II
CHIN413	Advanced Conversation and Composition
CHIN415	Readings in Current Newspapers and Periodicals
CHIN431	Translation and Interpretation I
CHIN432	Translation and Interpretation II
CHIN441	Traditional Chinese Fiction
CHIN442	Modern Chinese Fiction

B. 9 Credits - three 3-credit courses from among the following, which must be selected from at least two different departments (other Chinese-specific courses will be added to the list should they be developed):

CHIN313	Chinese Poetry and Prose in Translation
CHIN314	Chinese Fiction and Drama in Translation
CHIN315	Modern Chinese Literature in Translation
CHIN316	Traditional Chinese Values
CHIN331	Chinese Calligraphy: Theory and Practice
CHIN421	Sounds and Transcriptions of Mandarin Chinese
CHIN422	Advanced Chinese Grammar
CHIN423	Chinese Historical Phonology
CHIN424	Linguistics of the Chinese Writing System
CHIN428	Selected Topics in Chinese Linguistics
GVPT359	Topics in Comparative Politics: Comparative Democratization *(if a Chinese topic is the focus of the course)*
HIST419	Special Topics in History *(if a Chinese topic is the focus of the course)*
HIST480	History of Traditional China
HIST481	A History of Modern China

- Students must receive a "C or better in all courses used for the minor
- 9 of the 15 credits must be upper-level courses
- No more than six of the fifteen credits toward the minor may be taken at an institution other than University of Maryland, College Park

Classical Mythology

Classics (CLAS)
2407 Marie Mount Hall, 301-405-2013
www.classics.umd.edu

This minor will introduce students to classical mythology, its uses within ancient Greek and Roman culture, and its subsequent influence on art and literature. The minor requires 15 credits.

Required courses:

CLAS 170 Greek and Roman Mythology	3
CLAS 470 Approaches to Greek Myth	3

In addition, the student must choose three courses from the following list, two of which must be at the 300 or 400 level. All courses listed are 3 credit.
CLAS 270 Greek Literature in Translation
CLAS 271 Roman Literature in Translation
CLAS 320 Women in Classical Antiquity
CLAS 330 Ancient Greek Religion: Gods, Myths, Temples
CLAS 331 Ancient Roman Religion: From Jupiter to Jesus
CLAS 370 Classical Myths in America
CLAS 374 Greek Tragedy in Translation
CLAS 419 The Classical Tradition

Students interested in pursuing this minor should consult with the Undergraduate Advisor in the Department of Classics.

Community Health

School of Public Health
2387 School of Public Health Building, 301-405-2463
www.dpch.umd.edu

The Minor in Community Health has been suspended and currently is not accepting students to the program.

The minor in Community Health is intended for students who are interested in community health but whose primary focus is within another academic major. Students are required to take 12 credits of courses fundamental to the discipline and should select 9 additional credits from topic areas of interest. The Community Health minor will consist of the courses identified below (Required and Electives) and is open to any UMCP student except Community Health majors.

Required: All of the following courses: (total of 12 credits)

HLTH 130	Introduction to Public and Community Health (3)
HLTH 140	Personal and Community Health (3)
HLTH 230	Introduction to Health Behavior (3)
HLTH 391	Principles of Community Health I (3)

Electives: Any 3 of the following courses: (total of 9 credits)

HLTH 285	Controlling Stress and Tension (3)
HLTH 371	Communication Health and Safety (3)
HLTH 377	Human Sexuality (3)
HLTH 38X	Peer Education Course * (3)
HLTH 471	Women's Health (3)
HLTH 476	Death Education (3)
HLTH 430	Health Education in the Workplace (3)
HLTH 437	Consumer Behavior (3)
HLTH 485	Ways of Knowing About Human Stress & Tension (3)

* Students interested in a Peer Education course should contact the University Health Center. Only one (1) Peer Education course can be used in the Community Health Minor.

Additional Notes:

- No more than six (6) of the require credits may be taken at another institution.
- At least 9 credits must be from upper level courses.
- Any of the courses above taken prior to Fall 2003 can be applied to the minor.
- A minimum grade of "C" in all courses.
- A student may not use the same course to fulfill the requirements of more than one minor.
- Course work must be approved by the minor advisor

Computer Science

1119 A.V. Williams Building, 301-405-2672
www.cs.umd.edu
ugrad@cs.umd.edu

The purpose of the minor in Computer Science is not only to give students a strong foundation in and understanding of algorithmic reasoning, problem solving methods involving computers and computation, and a solid base to help students adapt to future changes in technology, but to complement and enhance any student's major program of study.

Participation in the minor will allow students to register for classes at the same time as majors currently enrolled in the Computer Science and Computer Engineering programs.

The minor in Computer Science consists of 15-24 credits; all courses must be completed with a grade of C or better. MATH140 is a pre-requisite for entrance into the curriculum for the minor.

Requirements:

		Credits
CMSC132	Introduction to Object Oriented Programming*	4
CMSC212	Introduction to Low Level Programming Concepts*	4
CMSC250	Discrete Structures*	4
CMSC330	Organization of Programming Languages	3
CMSC311 or 351	Computer Organization or Algorithms	3
CMSCXX and CMSCXX	Two of CMSC411, CMSC412, CMSC414, CMSC417, CMSC420, CMSC421, CMSC424, CMSC426, CMSC427, CMSC430, CMSC433, CMSC434, CMSC435, CMSC451, CMSC452, CMSC456, CMSC460, CMSC466. Note: some of these classes variously have MATH141, MATH240, MATH241 or PSYC100 as prerequisites.	6(7)

** or acceptable score on the CMSC exemption exam. Also note, MATH141 is a co-requisite for CMSC132. MATH140 is a co-requisite for CMSC131, which in turn is a pre-requisite for CMSC132.*

NOTES:

- Students who satisfy all three of 132, 212 and 250 by exemption exam shall take one additional 400 level class from the approved list. This obligation is in addition to all other minor requirements.
- With prior permission of the Undergraduate Director, and at his/her discretion, at most one section (3 credits) of CMSC498, Independent Study, may substitute for one of the two core CS classes in #6 above. This provision is intended to allow students to pursue unexpected opportunities for study of interdisciplinary topics having a substantial computational component complementing the major.
- Course combinations:
  - Students may not use more than one of CMSC460 or CMSC466 toward the minor.
  - Students may not use more than one of CMSC421, CMSC424, CMSC426 or CMSC427 toward the minor.
  - Students may not use more than one of CMSC452 or CMSC456 toward the minor.

Earth History

Geology (GEOL)
1115 Geology Building, 301-405-4365
www.geol.umd.edu

The undergraduate Minor in Earth History recognizes concentrated study in this designated field in the College Of Computer, Mathematical, and Physical Sciences. The award of a Minor will be noted on the student's transcript at the time of graduation.

This minor may be earned by students not majoring in Geology and is administered by the Geology Undergraduate Studies Director. A grade of "C" or better must be earned in all courses required for the minor. See www.geol.umd.edu for more information.

		Credits
GEOL100/110 or GEOL120/110	Physical Geology/Lab, **or** Environmental Geology/Lab	4
GEOL102	Historical Geology	4

Three from:		
GEOL331	Principles of Paleontology	4
GEOL341	Structural Geology	4
GEOL342	Sedimentation and Stratigraphy	4
GEOL436	Principles of Biogeochemisty	3
GEOL437	Global Climate Change: Past & Present	3
GEOL499	Special Problems in Geology	3
	Total	18-20

Earth Material Properties

Geology (GEOL)
1115 Geology Building, 301-405-4365
www.geol.umd.edu

The undergraduate minor in Earth Material Properties recognizes concentrated study in this designated field in the College Of Computer, Mathematical, and Physical Sciences. The award of a Minor will be noted on the student's transcript at the time of graduation.

This minor may be earned by students not majoring in Geology and is administered by the Geology Undergraduate Studies Director. A grade of "C" or better must be earned in all courses required for the minor. See www.geol.umd.edu for more information.

Required:

- One of the following:
    - GEOL 100/110 Physical Geology/Physical Geology (4)
    - GEOL 120/110 Environmental Geology/Physical Geology Lab (4)
- GEOL 322 Mineralogy (4)

Plus two from:

- GEOL 341 Structural Geology (4)
- GEOL 423 Optical Mineralogy (3)
- GEOL 443 Petrology (4)
- GEOL 445 High Temperature Geochemistry (3)
- GEOL 446 Introduction to Geophysics (3)
- GEOL 499 Special Problems in Geology (3)

Engineering Leadership Development

A. James Clark School of Engineering
3110 Jeong H. Kim Engineering Building, 301-405-8335
www.ursp.umd.edu/leadership-minor/minor-leadership.html

The minor in Engineering Leadership Development will prepare engineering students for life-long leadership roles in education, industry, and government. The minor will complement the technical skills and knowledge students acquire during their academic careers to better prepare them for leadership and collaborative roles in their professional futures. Students in the A. James Clark School of Engineering may earn a minor in Engineering Leadership Development by completing coursework which focuses on communication, global awareness, project management, understanding oneself and working effectively with others.

Requirements

The minor in Engineering Leadership Development consists of **16 credit hours.** A maximum of six credits may also count toward the student's major, and no more than six credits may be taken at an institution other than the University of Maryland College Park. All courses counted toward the minor must be completed with a C or better. The following courses are required:

- ENES 317: Introduction to Engineering Leadership (3 credits)
- ENCE 320: Engineering Project Management (3 credits)
- ENES 472: International Business Cultures in Engineering and Technology (3 credits)
- ENES 424: Engineering Leadership Capstone Course (3 credits)
- EDHI 338: Intergroup Dialogue (1 credit)
- Elective: Requires advisor approval (3 credits)

Note: ENES 317, ENCE 320, and ENES 472 must be taken **before** ENES 424.

English

2115 Susquehanna Hall, (301) 405-3825
www.english.umd.edu
english@umd.edu

The English minor has three parts: English 301, Group I courses, and Group II courses. The Group I courses assure that students acquire a broad foundation in literary history and critical strategies. The Group II courses offer students the opportunity to explore in greater depth literary periods and literary themes that cross periods. In these courses, students will develop skills in reading, criticism, writing, and research.

The English Minor Requires 21 Credits Distributed As Follows:

Credits

English 301: Critical Methods in the Study of Literature **3**

English minors must take ENGL 301 before they take other 300- or 400-level English courses. We strongly recommend that students take ENGL 301 during the sophomore year.

Group I Courses **6**

English minors must take two courses from two different categories in the Group I listings. These courses are to be taken at the 200- or 300-level. The Group I categories are:

- Literary and Cultural History (one course)
- Literary, Linguistic, or Rhetorical Analysis (one course)
- Literature of African Americans, Peoples of Color, Women, and/or Lesbians, Gays, and Bisexuals (one course)

Group II Courses* **12**

English minors must take four courses at the 300 and 400 level from the Group 2 listings. At least two of these courses must be taken at the 400 level. These four courses should be distributed in the following ways:

- Writing before 1800 - two courses 6
- Modern British, Anglophone, and/or Postcolonial writing (after 1800) - one course 3
- American, African American, and/or U.S. Ethnic Writing - one course 3

*One (and only one) Group II distributional requirement may be satisfied with any English course at the 300 or 400 level, other than ENGL 386 and ENGL 388.

Environmental Economics and Policy

Agricultural and Resource Economics (AREC)
2200 Symons Hall, 301-405-1291
www.arec.umd.edu

This minor provides students with economic knowledge to apply to analysis and understanding of environmental and resource policies. AREC 382 and the 400 level courses are a truncated version of the upper-level course requirements of the AREC major. These courses focus particularly on economic analysis relevant to environmental policy analysis. AREC 332 is a course intended primarily for non-AREC majors. AREC 240 is an introductory course giving students an overview of the subject. AREC 382 and AREC 455 are required courses in the ENSP environmental economics concentration; AREC 445 is on a list of restricted electives in that concentration. AREC 240 and AREC 332 can be used to meet ENSP core requirements for all ENSP concentrations.

AREC240	Introduction to Economics and the Environment	3
AREC332	Introduction to Natural Resource Policy	3
AREC382	Computer-based Analysis in Agricultural and Resource Economics	3
AREC445	Agricultural Development, Population Growth, and the Environment	3
AREC455	Economics of Land Use	3
	Another AREC course can be substituted for one of the course listed with permission of Undergraduate Advisor.	
	Total Credits	**15**

French Studies

School of Languages, Literatures, and Cultures (SLLC)
www.french.umd.edu

This 15-credit minor will provide students with a solid overview of linguistic, cultural and literary aspects of the study of French.

Courses required for the minor, in this order, are:

FREN 204, FREN 250, FREN 301

Following completion of this core sequence, students will choose two courses from the following:

FREN 302 or FREN303
FREN 306, 311 or 312
FREN 351, 352, or any 400-level course/s

- All courses must be taught in French
- A maximum of six (6) credits can be applied to the minor from courses taken at other institutions, with the exception of Maryland in Nice, which allows the transfer of nine (9) credits
- All courses presented for the minor must be passed with a grade of "C" or better
- Students who begin their study as native/fluent speakers should seek the advice of the advisor before choosing the courses they will use to replace the core minor courses.

Germanic Studies

School of Languages, Literatures and Cultures (SLLC)
www.german.umd.edu

This minor will provide students with an in-depth understanding of German Language and Literature as a source of Culture. Building on these essentials, students can concentrate on Language, Literature or Culture, or a combination of these fields. This will be accomplished by taking 5 courses beyond GERM 203 or its equivalent. Students will determine, in close consultation with the German undergraduate advisor, how to constitute their own concentration.

Minor Requirements:

15 credits - 5 courses beyond GERM203 or its equivalent

- 3 of these 5 courses (9 hours) must be upper division level
- Prerequisites: GERM 103 and 203 are required, or their equivalents as determined through departmental advising
- All courses must be passed with a grade of "C" or higher.

Geographic Information Science

Geography (GEOG)
2108 LeFrak Hall, 301-405-4073
www.geog.umd.edu
geog-advise@umd.edu

	Non-Geography Major Required Courses	
GEOG201/211 **or** GEOG202	Geography of Environmental Systems/Lab **or** The World in Cultural Perspective	3 or 4
GEOG306	Introduction to Geographic Methods for the Geographic Environmental Sciences	3
GEOG372	Remote Sensing	3
GEOG373	Geographic Information Systems	3
	One from:	
GEOG472	Remote Sensing: Digital Processing and Analysis	3
GEOG473	Geographic Information Systems and Spatial Analysis	
GEOG475	Computer Cartography	
	Total Credits	**15/16**

	Geography Major Required Coures	
GEOG306	Introduction to Quantitative Methods for the Geographic Environment Sciences	3
GEOG372	Remote Sensing	3
GEOG373	Geographic Information Systems	3
GEOG476	Programming for Geographers	3
	One from	
GEOG472	Remote Sensing: Digital Processing and Analysis	3
GEOG473	Geographic Information Systems and Spaial Analsysis	
GEOG475	Computer Cartography	
	Total Credits	**15**

Student must achieve a "C" or better in each course applied to the Minor in Geographic Information Systems.

Geophysics

Geology (GEOL)
1115 Geology Building, 301-405-4365
www.geol.umd.edu

Depending on the courses taken, there is a total of 16 - 18 credits required for the minor in Geophysics (also see prerequisites).

GEOL110/110	Physical Geology/Lab, **OR**	4
GEOL120/110	Environmental Geology/Lab	4
GEOL446	Introduction to Geophysics	3
GEOL457	Seismology	3
	Two from:	
GEOL322	Mineraology	4
GEOL341	Structural Geology	4
GEOL472	Tectonics	3
GEOL455	Marine Geophysics	3
GEOL499	Special Problems in Geology	3

All Geology minors are an appropriate disciplinary combination with Astronomy, Computer Science, Mathematics, or Physics majors within CMPS. The minors are also appropriate for majors outside the college with appropriate matches including, but not limited to:

Geography/Remote Sensing (Surficial Geology)
Engineering and Material Sciences (Earth Material Properties)
Evolutionary Biology and Physical Anthropology (Earth History)
Biology, Biological Diversity, and Ecology (Earth History, Hydrology)

Hearing and Speech Sciences

Hearing and Speech Sciences (HESP)
0100 LeFrak Hall, 301-405-4214
www.bsos.umd.edu/hesp

This minor is designed for the student in other majors (such as Psychology, Education, Linguistics, FOLA, etc.) who may have plans to attend graduate school in the fields of Speech-Language Pathology or Audiology. These courses are widely viewed as pre-requisite for admission to such programs and constitute a proportion (but not the full extent) of classwork required for eventual post M.A. or post-Au.D. certification by the American Speech-Language-Hearing Association (ASHA) as either a Speech- Language Pathologist or Audiologist. Because both graduate programs and ASHA may require additional coursework, the student pursuing the HESP minor is strongly encouraged to meet with a HESP academic advisor to ensure that eventual educational goals are properly addressed. The HESP minor does not qualify an individual to work professionally as a Speech-Language Pathologist or Audiologist, but does provide a proportion of the coursework required to practice in the State of Maryland as a Speech-Language Pathology Assistant.

Requirements for the HESP minor include the following coursework:

HESP 202-Introduction to Hearing and Speech Sciences

HESP 300-Introduction to Psycholinguistics

HESP 400-Child Language Acquisition

HESP 403-Phonetics

HESP 407-Hearing Science

PLUS 2 courses in one of the two elective areas:

*Elective option 1 (Speech-Language Pathology Focu*s)

HESP 305-Anatomy/Physiology of the Speech Mechanism, and

HESP 402, 404, 406, 410

Elective option 2 (Audiology focus)

HESP 311-Anatomy/Physiology/Pathology of the Auditory Mechanism, and

HESP 411-Introduction to Audiology

TOTAL CREDITS: 21

Notes:

- All classes must be completed with a grade of C or better; as with HESP majors, students must obtain a grade of C or better in a class in order to enroll in any courses that require that class as a pre-requisite.

- This course sequence acquaints the student with the primary basic science background in the speech, language and hearing sciences, and permits the student to select two courses in the specific professional areas of speech, language or hearing, based on the student's primary interest area.

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Hydrology

Geology (GEOL)
1115 Geology Building, 301-405-4365
www.geol.umd.edu

An undergraduate minor in Hydrology recognizes concentrated study in a designated field in the College Of Computer, Mathematical, and Physical Sciences. The award of a minor will be noted on the student's transcript at the time of graduation.

This minor may be earned by students not majoring in Geology and is administered by the Geology Undergraduate Studies Director.

A grade of "C" or better must be earned in all courses required for the minor. See www.geol.umd.edu for more information.

Minor Requirements

GEOL110/110	Physical Geology/Lab, **or**	4
GEOL120/110	Environmental Geology/Lab	4
GEOL322	Mineralogy	4
GEOL342	Sedimentation and Stratigraphy	4
	Two from:	
GEOL436	Principles of Biogeochemisty	3
GEOL444	Low Temperature Geochemistry	4
GEOL451	Groundwater	3
GEOL452	Watershed and Wetland Hydrology	3
GEOL499	Special Problems in Geology	3

Human Development

Human Development/Institute for Child Study (EDHD)
3304 Benjamin Building, 301-405-2827
www.education.umd.edu/EDHD

The minor provides a rigorous foundation in Human Development for students who wish to support their major field of study with knowledge of human growth and development across multiple domains and developmental stages, as well as knowledge related to principles of teaching and learning and/or who desire active participation in human development research under the supervision of Human Development faculty in laboratory settings. Students with a 2.0 minimum grade point average may seek enrollment in the program, during which they must complete 15-24 credits of coursework. Only courses in which the student has earned a grade of "C" or higher will count toward the minor. Students must take EDHD 306 and choose other courses from at least two of the other areas of human development study, as outlined below Students interested in taking this minor should contact the Human Development undergraduate minor advisor, Dr. Megan Hurley, at mhurley1@umd.edu or 301-405-7233 for more information or to arrange an advising appointment.

Area 1	Area 2	Area 3	Area 4
Cognitive	**Social**	**Research**	**Lifespan**
EDHD420	EDHD430	EDHD306**	EDHD230***
EDHD425	EDHD445		EDHD320
EDHD 426	HONR 219Y**		EDHD 400
EDHD 460	EDHD 498B***		EDHD 401
	HONR 348R***		EDHD 411
	CPSP 379E***		EDHD 413

**319 (Selected Topics in HD); 386 (Experiential Learning); 498 (Special Problems in Education)*
**These courses require a faculty advisor*
***EDHD 306 cannot be excluded from any course plan. It is required for all EDHD minors.*
****CORE designated course offerings*

International Development and Conflict Management

Government and Politics (GVPT)
3140 Tydings Hall, 301-405-4156
www.bsos.umd.edu/gvpt

The Minor in International Development and Conflict Management is a 19-credit, undergraduate program of instruction for students aspiring to a profession in the fields of conflict resolution, international development, and humanitarian relief.

Applications are accepted in the Spring and accepted students begin the program the following Fall. Students applying for the program must be entering their sophomore, junior, or senior year of undergraduate work. Applicants must be full-time students in good standing, with a cumulative GPA of 2.5 or better. Up to 35 students are accepted into the program each year.

Advising for the minor is conducted through the Center for International Development and Conflict Management directly, not the Department of Government and Politics. For more information about the minor and for application materials, please visit: www.cidcm.umd.edu/minor/
Requirements for the minor include the following coursework:

	Required Courses	**Credits**
GVPT 354	Peacebuilding, Post-Conflict Reconstruction, and International Development	3
STAT	One statistics course from approved list	3
GVPT 355	Capstone I: International Development and Conflict Management	3
GVPT 356	Capstone II: International Development and Conflict Management	3
ELECT	Elective courses from approved list (2 courses)	6
BSOS 388E	Behavioral and Social Sciences Special Topics: CIDCM Minor Practicum	
	Total Credits	**19**

Note: Six credits (or two courses) can be double counted for your major and the minor. All classes must be completed after acceptance into the minor program, with the exception of the statistics requirement.

International Engineering

A.James Clark School of Engineering (ENGR)
3110 Jeong H. Kim Engineering Building, 301-405-8335
www.eng.umd.edu

Preparing to practice engineering in a global economy is important for new engineers to advance in their careers. In addition to a strong engineering background, there is a need for engineers with cross-cultural experience and foreign language abilities. Students in the A. James Clark School of Engineering may earn a Minor in International Engineering (MIE) by completing requirements that can include language, culture studies, internationally related studies, international engineering or international engineering-related courses and an engineering abroad experience (work, study or research). Students interested in completing this minor program should contact the MIE advisor in the Clark School for advisement. Students who successfully complete the requirements for a Minor will have the accomplishment noted on their transcript.

Requirements:
The "Minor in International Engineering" requires 15-20 credits depending on the combination of 3 and 4 credit courses a student might choose to complete.

- International Business Cultures for Engineering & Technology (ENES472/SLLC472) [3 credits]
- An engineering study, work or research experience abroad (up to six credits of engineering courses completed as part of an engineering study abroad program may count to fulfill requirements for the international engineering minor). [0-6 credits]
- Foreign language, culture studies, internationally-related studies or international engineering-related courses selected in consultation with the MIE advisor and related to the locale of the engineering abroad experience. [6-17 credits]

Additional Requirements

- A maximum of six credits may count toward the student's engineering major.
- A maximum of six credits completed abroad may count toward the minor.
- A minimum of nine credits must be completed at the 300-level or above and at least six of those credits must be completed at the University of Maryland.
- All courses counted toward the minor must be completed with a "C" or better.

Contact the minor advisor, Jane Fines (jfines@umd.edu), or visit the web at www.ursp.umd.edu/international/index.html for more information.

Italian Language and Culture

School of Languages, Literatures and Cultures (SLLC)
www.italian.umd.edu

The minor in Italian Language and Culture is an official recognition that a student has reached a certain level of proficiency in the target language. The minor will serve as a validation to potential employers of the student's proficiency in Italian.

15 credits are required for this minor:
A student must complete five courses in Italian above the 203 level of which three must be at the 300 or 400 level.

A. Specific Course Requirements (9 credits)

ITAL 204	Review Grammar and Composition
ITAL 211	Intermediate Conversation
ITAL 311	Italian Conversation: Current Events

B. Additional Course Requirements (6 credits)
Choose from the following:

ITAL 301	Italian Composition and Style
ITAL 302	Italian Translation
ITAL 350	Readings in Italian Literature
ITAL 412	Dante's Divine Comedy
ITAL 422	The Italian Renaissance
ITAL 432	Italian Civilization

- All courses must be taught in Italian
- A maximum of six (6) credits can be applied to the minor from courses taken at other institutions, with the exception of the Study Abroad Program in Italy, which allows the transfer of nine (9) credits.
- All courses presented for the minor must be passed with a grade of "C" or better. Students who begin their study as native/fluent speakers should seek the advice of the Italian advisor before choosing the courses they will use to replace the core minor courses.

Japanese

School of Languages, Literatures and Cultures
www.japanese.umd.edu

This 15-credit minor is designed to provide a concentration in Japanese language and an introduction to the academic fields of Japanese literature and linguistics. The minor will,in addition, allow Japanese heritage speakers the opportunity to engage in language study for special purposes (such as Business Japanese, Diplomatic Translation, or Classical Japanese) as well as in the study of Japanese linguistics and literature.

Requirements for the 15 credit minor in Japanese include:

A. 6 credits of Japanese language courses, selected from the following list, with placement based on the student's language proficiency: JAPN 202 (6), JAPN 301 (6), JAPN 302 (6), JAPN 401 (3), JAPN 402 (3), JAPN 403 (3), JAPN 404 (3), JAPN 405 (3), JAPN 406 (3), JAPN 411 (3), JAPN 412 (3), JAPN 499 (3)

B. One 3 credit course focusing on Japanese linguistics selected from the following list: JAPN 421, JAPN 422, JAPN 428, JAPN 438, EALL 300

C. One 3 credit course focusing on Japanese literature selected from the following list: JAPN 21, JAPN 298, JAPN 317, JAPN 414, JAPN 415, JAPN 416, JAPN 418

D. An additional 3 credits from one of the three lists above.

- At least nine of the fifteen hours must be at the 300-400 level.
- Students must receive a "C" or better in all courses used for the minor.
- No more than 6 of the 15 credits toward the minor may be taken at an institution other than UMCP

Jewish Studies

Jewish Studies Program (JWST)
0142 Holzapfel Hall, 301-405-4975
www.jewishstudies.umd.edu
jwst-contact@umd.edu

The Minor in Jewish Studies offers a broad overview of the principal aspects of Jewish Studies as a field. Students are encouraged to take courses in a variety of areas through a combination of required fields and general electives.

Requirements - 15 credits are to be distributed as follows:

History	3 credits
Literature	3 credits
Thought, religion, or cultural studies	3 credits
Electives	6 credits

- A minimum of 9 credits must be at the upper level.
- All credits must be earned with a grade of 'C' or above.
- A list of qualifying courses in each category is available from the Director of the JWST program.
- Up to 3 credits of lower-level Hebrew or Yiddish language study may be credited toward the Minor. In exceptional cases, students may petition to have other languages included.
  Restrictions:
- Students enrolled in the Jewish Studies Major are not eligible to enroll in the Minor.
- At least six credits of upper-level credit must be taken at the University of Maryland.
- No more than six credits may be taken at an institution other than Maryland.
- In keeping with University policy, no more than six credits may also be applied to a major.

Korean Studies

School of Languages, Literatures, and Cultures (SLLC)
www.korean.umd.edu

The Korean Studies Minor will provide students with a basic knowledge of Korea and its language and culture. Five three-credit courses are required, and three of the five must be at the 300-level (or above). This minor is open to both heritage and non-heritage students alike. Those interested should contact the faculty in the Korean Language Program for advisement.

15 credits are required for the minor:

A. Korean language and language-related courses:

Two 3-credit courses devoted specifically to Korean language or language-related studies. Both must be at the second-year level or above. Courses that fit this description include the following:

KORA201	Intermediate Korean I
KORA202	Intermediate Korean II
KORA211	Introductory Reading for Speakers of Korean I
KORA212	Introductory Reading for Speakers of Korean II
KORA241	History of the Korean Language
KORA242	Introduction to Korean Linguistics
KORA311	Korean for Heritage Speakers, Advanced-Low I
KORA312	Korean for Heritage Speakers, Advanced-Low II

B. Korea-related courses:

Three 3-credit courses in Korea-related studies from fields such as history, sociology, and art history. At least one of these courses must have broad East Asian content to provide breadth to the minor. (Examples of such East Asian courses are marked with an asterisk.)

HIST319N*	Korean History
SOCY398K	Contemporary South Korean Society
HIST 284*	East Asian Civilization I
HIST 285*	East Asian Civilization II
HIST 319C*	Asian Age in World History
EALL 300*	The Languages of East Asia
GVPT 359C*	Politics of Japan and Northeast Asia
ARTH 290*	Art of Asia

- Other Korea-related courses may be used to satisfy the requirements, subject to the approval of the Korean Program advisor.
- Three of the five required courses must be at the 300-level or above.
- All courses presented for the minor must be passed with a grade of "C" or better.
- No more than six credits can overlap with the major, and no more than six credits can come from off-campus (study abroad, transfer, etc.).

Lesbian, Gay, Bisexual and Transgender Studies

2212 Marie Mount Hall, 301-405-5428
www.lgbts.umd.edu

15 credits: 12 credits are in required courses, while 3 credits are earned in one upper-level elective course.

A. Required core curriculum for the Minor in LGBT Studies (12 credits)

1. LGBT 200--Introduction to Lesbian, Gay, Bisexual, and Transgender Studies

2. One lower-level course focused on literature, art, or culture by or about LGBT people, either ENGL 265 or CMLT 291;

3. One of the following upper-division courses focused on the personal, social, political, and historical aspects of LGBT people: LGBT 350, PHIL 407, or WMST 494;

4. One of the following upper-division courses focused on literature, art, or culture by or about LGBT people: ENGL 359, 459, 465; or LGBT 327.

B. Elective course for the Minor in LGBT Studies (3 credits)

An upper-division elective will complement the required courses. This elective may be a course from categories 3 and 4 above that has not been used to fulfill requirements; or it may be one of the capstone courses in LGBT Studies (LGBT 386 or LGBT 488), or a course chosen from the list of approved electives for the LGBT Studies program. The list of approved electives is available at www.lgbts.umd.edu/minor.html. A student may also petition to have any course fulfill this requirement by providing evidence, usually the syllabus, that a substantial amount of the course work, usually including a term paper, consists of LGBT material.

- Appropriate substitutions for courses listed in categories 2 through 4 above may be made with approval from the Director of LGBT Studies.
- No course earned with a grade below "C" (2.0) will count toward the minor in LGBT Studies.
- Students may use a maximum of six credits (or two courses) to satisfy the requirements of both their major and the minor in LGBT Studies. However, courses taken to complete the minor in LGBT Studies may not be used to satisfy the requirements of another minor.
- No more than six of the required credits (or two courses) may be taken at an institution other than the University of Maryland, College Park. However, at least six upper division credits applied to the minor must be taken at this university.
- Students must declare the minor in LGBT Studies to the Director of LGBT Studies one year prior to their intended graduation to assure appropriate advising and record-keeping.

Landscape Management

Plant Sciences (PLSC)
2102 Plant Sciences Building, 301-405-4355
www.psla.umd.edu/

The Landscape Management minor provides students with a foundation in plant sciences and business management. The required science courses lead to an integrative understanding of plant growth and development and the plant's responses to its environment. These courses also teach students the skills needed to recommend best management practices and to identify plant abnormalities in the landscape. The business courses in this minor foster an understanding of the business structure, human resource management and financial management associated with landscape management companies.

All courses presented in this minor must be passed with a grade of C or better. To complete this minor, students will be expected to complete an 18-19 credit course sequence. Students should also be aware that many of the courses in this minor list PLSC100, *Introduction to Horticulture*, as a prerequisite.

Curriculum:

		Credits
PLSC253	Woody Plants for Mid-Atlantic Landscapes I	3
PLSC254	Woody Plants for Mid-Atlantic Landscapes II	3
PLSC305	Introduction to Turf Management	3
PLSC361	Commercial Principles of Landscape Management	3
PLSC452	Principles of Landscape Establishment and Maintenance	3
	Select one of the following courses:	
AREC240	Introduction to Agriculture and the Environment	4
AREC250	Elements of Agricultural and Resource Economics	3
AREC306	Farm Management	3
BMGT220	Principles of Accounting I	3

Total Credits: A minimum of 18 or 19 credits is required to complete this minor. (Depending on which AREC or BMGT course is chosen)

- A student may use a maximum of six credits (or two courses) to satisfy the requirements of both a major and a minor. In the event that more than six credits of coursework listed above are required in the student's major, he or she should contact the Landscape Management faculty advisor for course substitutions.
- This minor is particularly relevant to students who are interested in pursuing a career in the landscape industry. Landscape architecture, environmental science and policy, and life science majors can readily complete these minor requirements within their four-year programs.
- Students from the business school and social sciences who are seeking managerial careers in this rapidly-expanding service industry would also find this minor to be relevant.

Latin Language and Literature

School of Languages, Literatures and Cultures
www.classics.umd.edu

This minor introduces students to the Latin language and enables them to read, in Latin, important works of Latin literature. For students with no prior experience of Latin, the minor requires 21 credits, consisting of the following courses:

		Credits
LATN101	Elementary Latin I	4
LATN102	Elementary Latin II	4
LATN201	Intermediate Latin	4

LATNxxx LATNxxx	Two reading courses in Plautus, Petronius, Ovid or Horace and Catullus	6
LATN4xx	A reading course in a major Latin author	3
	Total	21

Students who enter with advanced standing in Latin can complete the minor by taking a total of five courses in Latin at the 200 level and beyond. Students interested in pursuing this minor should consult with the Undergraduate Advisor in the Department of Classics.

Leadership Studies

Counseling & Personnel Services (EDCP)
3214 Benjamin Building, 301-405-2858
www.education.umd.edu/EDCP

The EDCP Minor in Leadership Studies promotes college student leadership development by educating undergraduate students *for* and *about* leadership in a complex world. The goal of the minor is to prepare students to serve effectively in formal and informal leadership roles in campus, local, national, and global contexts. Faculty and students in the minor are dedicated to advancing the field of leadership studies by building upon and critically evaluating existing theoretical, research-based, and practical knowledge. Core courses in the minor are sequenced to meet increasingly complex sets of learning outcomes across cognitive, personal development, and group/organizational domains. Students in the minor are exposed to diverse theories and perspectives on leadership and are encouraged to apply analytical skills to develop their own working philosophy of leadership that will serve them in organizational and career contexts. Civic engagement and multicultural competence are viewed as necessary requirements for leadership.

Eligibility

The first 20 qualified applicants will be accepted on a first-come, first-serve basis each semester. In order to apply for the minor in Leadership Studies, students must have:

1. Completed at least 30 credit hours prior to application to the program.
2. Be in good academic standing.
3. Completed EDCP 217 with a C or better.
4. Been admitted into the Minor prior to the completion of the final 9 credits of Minor coursework and no later than one full academic year before the expected date of graduation.

The EDCP Minor in Leadership Studies consists of **18 credit hours**. No more than six credits can also be applied to a student's major, and no more than six credits may be taken at an institution other than the University of Maryland College Park. No course with an earned grade below C may count towards the minor.

Required Courses:

- EDCP 217 - Introduction to Leadership
- EDCP 315 - Leadership in Groups and Organizations
- EDCP 318 - Applied Contextual Leadership
  OR
- EDCP 418 - Leadership and Identity
- EDCP 417 - Advanced Leadership Seminar

Elective Courses:
Students must choose two 3-credit courses, at least one of the courses must be at the 300 level or higher, from an approved list of electives. See Beth Niehaus (0110 Stamp Student Union, eniehaus@um.edu) for the list of approved courses and additional details regarding the EDCP Minor in Leadership Studies.

Linguistics

Linguistics (LING)
1401 Marie Mount Hall, 301-405-7002
www.ling.umd.edu

The minor in linguistics will introduce students to key concepts that form the basis of modern generative linguistics. Students are introduced to Noam Chomsky's theory of 'Universal Grammar' and the different sub-areas of linguistics in two introductory courses. Two more advanced courses in syntax and in phonology build on this foundation, and one upper level linguistics elective completes the minor. The minor in linguistics will be of relevance to students majoring in languages, English, psychology, philosophy, education and computer science. Students interested in taking this minor
program should contact the undergraduate advisor in the Linguistics Department.

Courses required for the minor are:

LING 200 Introduction to Linguistics (3 credits)
LING 240 Language and Mind (3 credits)
LING 321 Phonology I (3 credits)
LING 311 Syntax 1 (3 credits)
In addition, the student should choose any one 300 or 400 level linguistics elective as a fifth course in linguistics.

- A total of 15 credits is required.
- All courses presented for the minor must be passed with a grade of 'C' or better.
- Students who are considering the minor in linguistics should be aware that LING 321 and LING 311 are currently offered in the fall semester only.

Mathematics

1117 Mathematics Building, 301-405-5053
www.math.umd.edu

The Department of Mathematics offers a minor in Mathematics for students majoring in other disciplines. The goal of the minor in Mathematics is to provide the student with significant mathematical skills and a perspective on the discipline.

The requirements for the minor include at least 19 credits beyond first-year calculus and are outlined below:

	Credits
MATH241	4
MATH240 **or** MATH461 (or MATH 340 and 341)	3-8
At least one theoretical course from: MATH 403, 405, 410	3
At least one algebra course from: MATH 401, 402, 403, 405, 406	3
At least one analysis course from: MATH 410, 414, 462, 463, 464	3
At least one probability course from: STAT400 or STAT410	3

Note: *If additional credits are needed in order to fulfill the 19-credit minimum, any 400-level MATH-STAT-AMSC courses except MATH 400, MATH 477-478, 480-484, 489, 498, and STAT 464 are acceptable.*

Other issues related to the minor in Mathematics:

- The Minor in Mathematics is NOT open to Mathematics majors.
- The student will need to achieve at least a C (2.0) in each course to be applied to the Minor in Mathematics.
- A student may use a maximum of 2 courses in II - V to satisfy the requirements of both a major and the Minor in Mathematics.
- No more than 1 of the 400-level courses for the Minor in Mathematics may be taken at an institution other than the University of Maryland, College Park.

The departmental advisor for this program is Ida Chan, Undergraduate Mathematics Advisor (ugadvisor@math.umd.edu).

Meteorology

Atmospheric and Oceanic Science (ATMOS)
3417 Computer and Space Sciences Building, 301-405-5391
www.atmos.umd.edu

This Minor will provide the students with a general background in Meteorology as offered by the lower level courses, and a broader background on a wide range of sub-fields in Meteorology and on current issues in Climate Research, as provided by the two required courses. This Minor is aimed at students who wish to be informed about this field, who do not have an a priori interest to pursue graduate work in this field, but who might pursue careers where background in Meteorology is important, such as environmental policy, government, and industry. This Minor is not open to students who major in Physical Sciences with a concentration in meteorology, or who major in Physics with the Meteorology Physics area of concentration.

A total of 15 credits is required. All courses presented for the Minor must be passed with a grade of "C" or better.

The students must choose two electives from:

- METO 123 Global Change)
- METO 200 Weather and Climate
- Any other 400 level courses offered below as electives

Two required courses:

- METO 400 The Atmosphere
- METO 401 Global Environment

One additional elective from:

- Any 400 level courses offered in the Department of Meteorology on a regular basis or from a list of non-permanent electives that will be offered by Research Scientists, regular faculty from Meteorology, or members of the Earth System Science Interdisciplinary Center (ESSIC)
- Courses offered by the Department of Geology and Geography, such as:
    - GEOL 437 (Global Climate Change: Past and Present)
    - GEOL 452 (Watershed and Wetland Hydrology)
    - GEOG 446 Applied Climatology
    - GEOG 447 Advanced Biogeography
    - GEOG 472 Remote Sensing

Minor in Middle Eastern Studies

History (HIST)
2115 Francis Scott Key Hall, 301-405-4265
www.history.umd.edu

Advisor: Professor Zilfi; mzilfi@umd.edu; 301-405-4270

Requirements: 15 credits (5 courses) towards the Minor in Middle Eastern Studies. Coursework must be distributed to meet the overlapping requirements below. (For example, PHIL 416: Medieval Philosophy can be used to meet both the pre-modern requirement and the upper-division requirement.)

> ***6 credits:*** At least one course each in two geographical, linguistic, cultural, or religious areas. These may include the following: (a) the Arab world; (b) Iran and the Iranian world; (c) Jewish and Israel; (d) Turkish and Ottoman; and (e) Diaspora Studies. Other areas of concentration may be considered and require the advisor's approval.
>
> ***6 credits:*** At least two courses (6 credits) must focus on the pre-modern (pre-20th century). Middle East students may fulfill this requirement through their area distribution or elective courses.
>
> ***3 credits:*** The balance of credits consists of electives and may be selected from the list of approved Middle East Studies courses.

- A minimum of 3 courses (9 credits) must be at the upper level.
- All credits must be earned with a grade of 'C' or above.
- A list of qualifying courses in each category is available from the academic advisor of the minor.
- Up to 3 credits of language instruction (Arabic, Hebrew or Persian; others by petition) may be credited toward the Minor.

Restrictions:

- Students enrolled in the Jewish Studies Major are not eligible to enroll in the Minor.
- At least six credits of upper-level credit must be taken at the University of Maryland.
- No more than six credits may be taken at an institution other than Maryland.
- In keeping with University policy, no more than six credits may be simultaneously applied to the major.

Music Performance

School of Music
2110 Clarice Smith Performing Arts Center, 301-405-5549
www.music.umd.edu

This minor provides students with high-level training in instrumental or vocal performance. Four semesters of individual study are taken concurrently with four semesters of ensemble. MUSC 130 and MUSC 140 provide basic historical and theoretical background in support of performance studies. Admission to the minor is based on successful completion of a performance audition before a faculty committee prior to enrolling in the minor.

Eighteen credit hours consisting of the following:

- Four semesters of applied lessons (MUSP 302, 303, 402, 403)
- Four semesters of ensemble (chosen from MUSC 129, 229, 329)
- MUSC 130 Survey of Music Literature
- MUSC 140 Fundamentals of Music

Admission to the minor in music performance is based on a required performance audition before a faculty committee. Audition dates and requirements are available from the School of Music office.

Students who fulfill Minor requirements will receive a Minor on the official transcript. Please contact the School of Music Office for more information.

Nanoscience and Technology

Maryland NanoCenter
Kim Engineering Building
www.nanocenter.umd.edu/education/nano_minor/nano_minor.php

Explosive growth in the field of nanometer scale science and technology (NS&T) has led in the past few years to many technological advances in devices and materials structured at the nanometer scale. The Interdisciplinary Minor Program of Study in Nanoscience and Technology at the University of Maryland is intended to prepare participating University of Maryland students for a career in this rapidly developing field. This program draws upon the considerable expertise in nanoscience at Maryland, in departments distributed among three schools: Engineering; Computer, Mathematics and Physical Sciences; and Chemistry and Life Sciences. Students take courses in Fabrication/Synthesis and Characterization, which emphasize the experimental side of NS&T, as well as Fundamental Science and Specialization Electives, which teach the underlying principles and directions, and include underlying theory and the motivations for NS&T. The minor is open to any student majoring in Engineering, Physics or Chemistry.

Completion of the program instills in students the broad perspective needed for nano, including understanding and experience in fabrication/synthesis of nanomaterials and structures, their characterization/measurement, the fundamental science underlying them, and their applications.

For more information see www.nanocenter.umd.edu/education/nano_minor/nano_minor.php or contact Director, Nano Minor Professor, Ray Phaneuf , MSE, or Education Coordinator, Nano Minor, Dr. Kathleen Hart, MSE.

Nuclear Engineering

Mechanical Engineering (ENME)
2181 Engineering Classroom Building, 301-405-2410
www.enme.umd.edu

Contact Dr. G.A. Pertmer (pertmer@umd.edu) for further information.

The minor in Nuclear Engineering provides the engineering student with the understanding of nuclear engineering and its application to many different fields, such as power generation, reactor operation, and industrial uses. Students in the minor will learn the fundamentals of nuclear reactor engineering, radiation interactions and measurement, power plant design concepts, and reactor safety. The minor is open to any student in the Clark School of Engineering.

Requirements for Minor

To successfully complete the minor in nuclear engineering, a student must complete a total of 15 credits (5 3-credit courses). All courses must be completed with a grade of 2.0 or higher. A maximum of two of the required five courses can be used to satisfy requirements of the student's major (with approval of the major department).

All students pursuing the minor will be required to take the following four courses:

- ENME 430- Fundamentals of Nuclear Reactor Engineering
- ENME 431- Nuclear Reactor Systems and Safety
- ENME 432- Reactor and Radiation Measurements Laboratory
- ENME 472- Capstone Design Project (Nuclear Topic)

The fifth course for the minor will be selected, with the help of the student's minor advisor, based on student interest. Some possible choices include:

- ENME 488- Special Problems in Mechanical Engineering
- ENME 489X- Special Topics is Mechanical Engineering (Student would select an appropriate course from a number of special topics courses taught each semester in the Mechanical Engineering Department)
- ENRE 446- Applied Reliability Engineering
- ENRE 447- System Safety Engineering
- ENMA 422- Radiation Effects on Materials
- ENEE 474- Power Systems

Students who fulfill minor requirements will receive a notation on their official transcript.

Neuroscience

Department of Psychology
1107 Biology-Psychology Building, 301-405-5866
www.psychology.umd.edu

The Minor in Neurosciences will give the highly qualified and motivated undergraduate an opportunity to study Neuroscience. The emphasis includes study in systems, cognitive, and computational neuroscience in a manner that crosses the traditional boundaries of Psychology, Biological Sciences, and other related disciplines. The minor is most appropriate for students who already have a background in the biological sciences or psychology.

- All majors are eligible for the minor except students in the Physiology & Neurobiology (PHNB) track in Biological Sciences (BSCI).
- There are a number of science course prerequisites for the required and elective classes. Students should carefully review the prerequisites for all courses listed for the Neurosciences minor. A student without a sufficient science background may not be able to complete the minor in the allotted credits.
- Students may only count a maximum of two courses (6-8 credits) toward both their major degree requirements and the Minor in Neurosciences.

Eligibility and Application to the Minor

In order to apply for the Minor in Neurosciences, a student must have:

1. Completed at least 30 college credits and at least 15 credits at UM.
2. Earned at least a C (2.0 GPA) in BSCI105 and CHEM131&132 or have AP equivalents.
3. Earned at least a C (2.0 GPA) in PSYC301 or BSCI330.

4. Be in good academic standing.

Applications for the Minor in Neurosciences will be considered three times each year on October 1, March 1, and June 1. Students will be notified via email regarding the status of their application within three weeks of the submission deadline so that students will know whether or not they are accepted to the prior to early registration for the next semester.

Interested students may submit an application for the minor to the Undergraduate Psychology Office (BPS 1107). Applications are available on the Neurosciences and Cognitive Sciences (NACS) Program website at www.nacs.umd.edu.

Course Requirements

There are five required courses (11-14 credits) and two elective courses (6-8 credits) for a total of 17-22 credits to complete the minor. The five required courses and their prerequisites are listed below. A list of eligible electives can be found on the program website at www.nacs.umd.edu.

Required Courses *(5 courses, 11-14 credits)*	**Course**	**Prerequisites**
PSYC301 or BSCI453	PSYC301 Biological Basis of Behavior (3) BSCI453 Cellular Neurophysiology (3)	BSCI105, PSYC100 BSCI330, CHEM231/232, PHYS122
PSYC401 or BSCI454	PSYC401 Biological Basis of Behavior Lab (4) BSCI454 Neurophysiology Lab (1)	BSCI105, PSYC200, PSYC301 or equiv. BSCI330, CHEM231/232, PHYS122
PSYC402 or BSCI446	PSYC402 Neural Systems (3) BSCI446 Neural Systems (3)	PSYC206 or PSYC301 BSCI330
PSYC403 or BSCI360	PSYC403 Animal Behavior (3) BSCI360 Principles of Animal Behavior (3)	PSYC206 or PSYC301 BSCI105, BSCI106, BSCI222
PSYC409	Topics in Neuroscience Seminar (1)	Permission of Instructor & Department

Persian Studies

School of Languages, Literatures and Cultures
www.persian.umd.edu

This 15-credit minor will provide students with a background in linguistic, literary, and cultural aspects of the study of Persian, including the cultures of Iran, Afghanistan, Persian-speaking Central Asia, and the Persian diaspora. Students will work toward linguistic competence in speaking, reading, writing, and listening; students will be introduced to Iranian culture in its diverse perspectives, practices, and products.The Minor in Persian Studies complements a range of professions, including careers in education, engineering, government, journalism, the arts, business, and communication.

- A minimum of 9 credits must be earned through courses taught in Persian.
- Up to 6 may be earned from PERS courses taught in English.
- A minimum of 9 credits must be at the upper level.
- All courses presented for the minor must be passed with a grade of 2.0 or better.
- A maximum of 6 credits may be applied to the minor from courses taken at other institutions.
- No more than 6 credits of the minor may be used to satisfy the requirements of a major.

No courses applied to the minor may count toward another minor. All students planning to pursue the Minor in Persian Studies should contact the undergraduate advisor for Persian, who will be responsible for oversight and record keeping.

Prerequisites (14 credits):
PERS 101 Elementary Persian I (4 credits)
PERS 102 Elementary Persian II (4 credits)
PERS 201 Intermediate Persian I

There are no prerequisites for students with equivalent knowledge.

Course requirements:
A. Courses taught in Persian (at least 9 credits); All prerequisites imply "or equivalent knowledge."

PERS 202 Intermediate Persian II (prereq 201/211)
PERS 301 Advanced Persian I (prereq 202/212)
PERS 302 Advanced Persian II (prereq 301)
PERS 452 Modern Persian Literature: A Survey (prereq 302)
PERS 453 Classical Persian Literature: A Survey (prereq: 6 credits Arabic)

B. Persian Studies Courses Taught in English (up to 6 credits; no prerequisites)

PERS 251 Modern Iran (SH/D)
PERS 283 Iranian Cinema (HA-HO/D)
PERS 353 Iranian Life in Literature and Film (D)

PERS 371 Introduction to Persian Literature in Translation (D)
PERS 441 Islam in Iran (D)

Philosophy

1125A Skinner Building, 301-405-5689
www.philosophy.umd.edu

The study of philosophy develops students' reasoning and expository skills and increases their understanding of the foundations of human knowledge and value. The department views philosophy as an activity rather than a body of doctrine and students can expect to receive training in clear thinking, inventive synthesis, and precise expression. For some, this will serve as preparation for graduate studies in philosophy. However, philosophical skills are useful in professions such as law, medicine, government, business management, and in any field that demands intellectual rigor. The department offers a wide range of courses, including several that deal with the philosophy of various disciplines outside philosophy itself.

Philosophy Minors must take at least 18 hours (six courses) in philosophy, not counting Internship courses (PHIL 386). All courses counted toward the minor must be passed with grades of "C" or better.

The six philosophy courses must be distributed as follows:

- at least three courses numbered 300 or above;
- at least one course numbered 200 or above in the history of pre-twentieth-century philosophy;
- at least one course numbered 200 or above in value theory (including aesthetics and political philosophy as well as ethics);
- at least one course numbered 200 or above in metaphysics or epistemology (including philosophy of science, philosophy of mind, and philosophy of religion, as well as metaphysics and theory of knowledge).

Physics

1120 Physics Building, 301-405-5979
www.physics.umd.edu
phys-ugradinfo@physics.umd.edu

This minor provides a rigorous foundation in physics for students who choose not to complete the entire physics major. The minor begins with a set of two introductory courses (6 credits) in electromagnetic fields (PHYS 262 or PHYS 272) and waves (PHYS 263 or PHYS 273). As part of this introduction to Physics, the minor also requires a one-credit introductory physics laboratory (PHYS 174, PHYS 261, or PHYS 271) involving techniques of data gathering and analysis. To obtain a deeper understanding of physics, the minor requires three additional upper-level courses (3-4 credits each), which students can select from the list below.

- Other upper level Physics courses can be substituted only with approval from the Department's undergraduate director and the Faculty Minor Advisor.
- All courses must be completed with a grade of C or better to be counted towards the minor.
- No more than 7 credits in this minor can count toward major requirements. Students with more than 7 credits of overlap must substitute non-overlapping 300 or 400 level courses from the above list to reduce the overlap to no more than 7 credits.
- Physics majors and students majoring in Astronomy are not eligible to complete the Physics Minor due to the large number of overlapping course requirements.

		Credits
	Courses required for the minor	**7**
	One from:	
PHYS174	Physics Laboratory Introduction	1
PHYS261	General Physics: Vibrations, Waves, Heat, Electricity and Magnetism: Laboratory	1
PHYS271	General Physics: Electrodynamics, Light, Relativity and Modern Physics: Laboratory	1
	One from:	
PHYS272	Introductory Physics: Fields	3
PHYS260	General Physics: Vibrations, Waves, Heat, Electricity and Magnetism	3
	One from:	
PHYS273	Introductory Physics: Waves	3
PHYS270	General Physics: Electrodynamics, Light, Relativity and Modern Physics	3
	Three from the following:	*9-12*
PHYS374	Intermediate Theoretical Methods	4
PHYS375	Experimental Physics III: EM Waves, Optics & Modern Physics	3
PHYS401	Quantum Physics I	4
PHYS402	Quantum Physics II	4
PHYS404	Introductory Statistical Thermodynamics	3

PHYS410	Classical Mechanics	4
PHYS411	Intermediate Electricity and Magnetism	4
PHYS465	Modern Optics	3
PHYS474	Computational Physics	3

Prerequisites
MATH 140 (4 credits), MATH 141 (4 credits), MATH 241 (4 credits), MATH 240 (4 credits), MATH 246 (3 credits), and Physics 161 (or Physics 171) (3 credits) are prerequisites for some of the courses in this program.

Contact
Students interested in earning a minor in physics should contact the undergraduate advisor for the Physics Department:

1120F John S. Toll Physics Building; 301-405-5979
email: phys-ugradinfo@physics.umd.edu

Note: At the beginning of the semester in which graduation is intended, a student should make an appointment with the Physics Department's Undergraduate Advisor to fill out the appropriate paperwork.

Portuguese Language, Literatures, and Cultures

School of Languages, Literatures, and Cultures
www.portuguese.umd.edu

This 15-credit minor will provide students with a solid overview in the linguistic, literary and cultural aspects of Portuguese-speaking countries, with emphasis on Brazil.

Prerequisite: Portuguese 104 and 204 or equivalent

Requirements: Students will choose the fifteen credits from among the following courses: Portuguese 205, 228*, 311, 320, 321, 350, 378*, 408, 409, 421, 470, 478*.

**Portuguese 228, 378, 478 are conducted in English. The majority of written assignments will be in Portuguese for those students in the minor program.*

- A maximum of 6 credits may be applied to the minor from courses taken at other institutions.
- A maximum of 9 credits may be applied from a University of Maryland Study Abroad program.
- All courses must be passed with a grade of C or better.

All administrative records and advising will be handled by the advisor for the Portuguese Program: Regina Igel, ri@umd.edu, 301-405-6457.

Project Management

Civil and Environmental Engineering (ENCE)
1173 Engineering Classroom Building, 301-405-7768
www.pm.umd.edu/undergrad_programs/undergrad_minor_courses/index.html

A basic understanding of project management is becoming increasingly important for engineers. Such knowledge enables them to contribute immediately to employers, and to advance their careers. In addition to a strong engineering background, there is significant need for engineers to understand the fundamentals of managing projects in order to effectively participate as members of project teams. Students who successfully complete minor requirements will receive a notation on their official transcript. Contact John Cable, Project Management Minor Advisor (jcable@umd.edu) or visit the web site.

A total of 15 credits are required. All courses for the minor must be passed with a grade of "C" or better.

ENCE 320	Introduction to Engineering Project Management (3)
ENCE 421	Engineering Contract Law (3)
ENCE 422	Project Cost Accounting & Economics (3)
ENCE 423	Project Planning, Scheduling, & Control (3)
ENCE 424	Communications for Project Managers (3)

Religious Studies

Jewish Studies Program (JWST)
0142 Holzapfel Hall, 301-405-4975
www.jewishstudies.umd.edu
jwst-contact@umd.edu

Religious Studies is an interdisciplinary field that enables students to study the texts, culture, history, beliefs, and practices of the religions of the world, present and past. The minor in Religious Studies draws from a wide range of departments and programs (including Anthropology, Art History, Classics, English, History, Jewish Studies, and Philosophy) and offers the opportunity for both in-depth and wide-ranging study. A required core course, HIST 216, introduces students to religions of the world and to the academic study of religion. In addition to this course, students are required to take three courses at the upper level and another two at any level. Completion of coursework includes fulfillment of a breadth requirement, which demonstrates that students have been exposed to a variety of religious traditions, periods, and geographic regions.

Selection of courses in consultation with the advisor will ensure that students complete this breadth requirement.

Among the regularly-offered courses that may be counted toward the minor are: ARTH 200, ARTH 201, ARTH 250, ARTH 290, ARTH 314, ARTH 376, CHIN 316, CLAS 170, CLAS 470, ENGL 262, ENGL 263, ENGL 277, ENGL 477, GERM 283, GERM 287, HIST 111, HIST 120, HIST 282, HIST 284, HIST 306, HIST 332, HIST 480, PHIL 236, and many courses in JWST and HONR. Other courses may be taken with the permission of the minor advisor.
Requirements:

- **HIST 216:** Introduction to the Study of World Religions.
- **Three courses at the 300-level or above.** These courses can be in any of a variety of subjects, chosen in consultation with an advisor. See Breadth requirement below.
- **Two additional courses at any level.** Chosen in consultation with an advisor. See Breadth requirement.

Breadth requirement
The breadth requirement has multiple facets, but many students will be able to fulfill all the aspects of the requirement with a single course.

A. Breadth of coverage: Courses must reflect focused study of at least two religious traditions (understood broadly to include Judaism, Christianity, Islam, Hinduism, Buddhism, and polytheistic religions).

B. Geographic breadth: Courses must be drawn from at least two geographic regions (understood broadly to include Europe, Asia, the Middle East, Africa, and the Americas).

C. Temporal breadth: Courses must be drawn from at least two temporal periods (understood broadly as antiquity, the medieval and early modern periods, and modernity).

D. Depth: At least one course must incorporate the focused study of a single religious tradition or cluster of traditions (see item A for traditions).

E. A student with a strong interest in religions of the ancient Mediterranean could complete the breadth requirement
with a single course on African or Asian religion. A student with a strong interest in religion and literature could take most of their requirements in that category and complete the breadth requirement with a single in-depth traditions course (for example, from the "Islam" category). A student with focus in religions of America may need to take both an
ancient course and a non-Western course.

- A minimum of 9 credits must be at the upper level.
- All courses must be passed with a grade of 'C' or above.
- A list of qualifying is available from the Director of the JWST program.
- At least six credits of upper-level credit must be taken at the University of Maryland.
- No more than six credits may be taken at an institution other than Maryland.
- In keeping with University policy, no more than six credits may also be applied to a major.

Resource and Agricultural Policy in Economic Development

Agricultural and Resource Economics (AREC)
2200 Symons Hall, 301-405-1291
www.arec.umd.edu

This minor provides students with economic knowledge to apply to analysis and understanding of policies affecting agriculture and resource use in developing countries. The 400 level courses are a truncated version of the upper-level course requirements of the AREC major. These courses focus particularly on economic analysis relevant to agricultural and development policy. AREC 365 is a course on world food supply and demand intended primarily for non-AREC majors. AREC 250 is an introductory course giving students an overview of the subject

AREC250	Elements of Agricultural and Resource Economics	3
AREC365	World Hunger, Population and Food Supplies	3
AREC433	Food and Agricultural Policy	3
AREC445	Agricultural Development, Population Growth, and the Environment	3
AREC453	Natural Resources and Public Policy	3
	Another AREC course can be substituted for one of the course listed with permission of the Undergraduate Advisor.	
	Total Credits	**15**

Rhetoric

Department of Communication and Department of English
www.comm.umd.edu/rhetoricminor.html

Rhetoric is the theory of persuasive communication, both written and spoken. The minor in rhetoric has been designed for students who want to know the principles and skills of practical persuasion in its varied contexts. The program will be of value for all students wishing to improve their writing and speaking skills and especially useful for those students who plan careers in business, management, law, government, and education. The minor in rhetoric is an interdisciplinary program offered through the cooperation of the Department of English and the Department of Communication.

Fifteen semester hours of coursework are required:

A. Six semester hours from the course list in Rhetorical Theory and Analysis of Discourse
B. Six semester hours from the course list in Writing and Speaking Skills
C. Three semester hours in electives from either section of the Rhetoric Course List
D. At least nine of the fifteen semester hours must at the 300-level or higher (including at least six hours at the University of Maryland, College Park)
E. No more than six of the fifteen semester hours may be taken at an institution other than the University of Maryland, College Park
F. No more than six of the fifteen semester hours may count toward the student's major, supporting courses, and college requirements
G. No course from the student's major department may count toward the minor
H. No course used to satisfy a Fundamental Studies requirement may count toward the minor
I. No course used to satisfy the requirements of another minor may count toward the rhetoric minor.
J. No course grade below the grade of "C" may count toward the minor

Entering the Minor:

Students wishing to pursue the minor should review the requirements above, make tentative selections of courses below to satisfy these requirements, and meet with one of the advisers below. The earliest possible meeting to draft a list of courses is recommended. Students must then officially declare the minor in rhetoric.

Current course lists for the minor in Rhetoric can be found at:
www.comm.umd.edu/rhetoricminor.html

Minor Advisors:

James F. Klumpp	Shirley Logan
Department of Communication	Department of English
2122 Skinner Building	4139 Susquehanna Hall
jklumpp@umd.edu	slogan@umd.edu
301-405-6520	301-405-9659

Russian Studies

School of Languages, Literatures, and Cultures
www.russian.umd.edu

The Minor in Russian Studies is a series of five courses to be chosen in consultation with the departmental advisor. The completion of a Minor in Russian Studies provides students with a broad background in Russian language, literature and culture.

A minimum of fifteen credits/five courses* is required, to be chosen from among the following:

Courses taught in Russian:
RUSS 201, 202, 210, 211, 301, 302, 303, 307, 321, 322, 381, 382, 401, 402,403, 404, 405, 406, 407, 409, 410, 411, 412, 431, 432, 433, 434, 473

Courses in English:
RUSS 221, 222, 281, 282, 298, 327, 328, 329, 398, 439

Courses in SLAVIC may also be counted toward the Russian Studies Minor: SLAV 469, 475, 479

Prerequisites for the Minor: RUSS 102 (Elementary Russian) or the equivalent as determined by the department

**Note that in most cases, five courses of 3-credits each will fulfill the 15-credit requirement. However, RUSS 201 and 202 are 5 credit courses. If a student chooses to count these two courses as part of the Minor, they are still required to complete three additional courses (for a total of five courses).*

- Courses taken through Study Abroad programs may be applied.
- A minimum of six credits must be earned from courses in Russian.
- At minimum of nine credits must be at the 300- or 400-level.
- Transfer credits (from study abroad or another US institution) may count toward the Minor with approval of the department. In most cases, a maximum of six transfer credits will be approved.
- All courses counting toward the minor must be passed with a "C" or better.
- Substitutions of other departmental offerings may be approved by the advisor.

Oversight of the Minor program will be through the normal academic processes of the Russian program in the School of Languages, Literatures and Cultures. The Undergraduate Advisor will be responsible for ensuring that students are properly advised and that records are appropriately kept.

Second Language Education

Curriculum and Instruction - Secondary Education (EDCI)
2311 Benjamin Building, 301-405-3324
www.education.umd.edu/EDCI

The minor in Second Language Education provides opportunities for undergraduate subject area majors to complete a sequence of courses that helps them prepare for careers as teachers of English as a second language in US schools and/or prepare them for roles as teachers of English as a foreign language in international settings. If the undergraduate pursuing the minor desires to enter the ESOL teacher preparation track, the candidate may apply for the Five Year Integrated Program option or the one year MCert Program option; in either case, satisfactorily completed courses in the minor that meet program requirements will be applied to the certification program requirements. Students should consult with an advisor in the Department of Curriculum and Instruction to identify the most appropriate option leading to teacher certification and to review the specific admission requirements associated with that program.

The minor in Second Language Education includes coursework from the Department of Curriculum and Instruction and the Department of Human Development. The curriculum provides a foundation in second language learning and pedagogy, adolescent learning, cross-cultural issues and understanding, and curricular and pedagogical issues which support reading and writing in a second language context. Several of the courses include field components that provide candidates with direct experience in working with second language learners. The minor incorporates coursework required for TESOL certification from the Maryland State Department of Education.

Courses required for the minor are:

		credits
EDCI437	English Grammar Pedagogy for Teachers of English Language Learners	3
EDCI432	Issues in the Education of English Language Learners	3
EDHD413	Adolescent Development	3
EDCI434*	Pedagogy of Teaching English Language Learners	3
EDCI435*	Teaching English Language Learners Reading and Writing in the Secondary Content Areas	3
EDCI436	Understanding Cross Cultural Communication for Teaching English Language Learners	3

* courses that include required field experiences

Secondary Education

Curriculum and Instruction - Secondary Education (EDCI)
2311 Benjamin Building, 301-405-3324
www.education.umd.edu/EDCI

The minor will provide opportunities for undergraduate subject area majors to enroll in a sequence of education courses that helps them to determine if teaching is a viable career option for them. The 15-18 credit minor may be taken prior to admission into a teacher preparation program. If an undergraduate student pursuing the minor desires to enter an education track, the candidate may apply for the dual major program to obtain certification as a secondary education classroom teacher through completion of a Maryland State Department of Education approved program option. Some of the courses students take to complete the Minor in Secondary Education may be applicable toward certification options at the post-baccalaureate level offered through the Department of Curriculum and Instruction. Students should consult with an advisor in the Department of Curriculum and Instruction to identify the most appropriate option leading to teacher certification and to review the specific admission requirements associated with these programs.

The secondary education minor includes coursework from the Departments of Curriculum and Instruction, Human Development, and Education Policy Studies. The curriculum provides a foundation in adolescent development and education policy and includes an introductory pedagogy course in one of the core secondary areas: English, Social Studies, Mathematics, Science, Foreign Language. The minor also incorporates coursework to meet the MSDE reading requirements that are part of secondary subject area teacher certification.

Courses required for the minor are:

		Credits
EDHD413	Adolescent Development	3
EDHD426	Cognition and Motivation in Reading: Reading in Content Areas I	3
EDCI463	Reading in the Secondary School	3
	Select one of the following foundation courses:	
EDPS201 or EDPS210 or EDPS301	Education in Contemporary American Society or Historical and Philosophical Perspectives on Education or Foundations of Education	3
	Select one of the following secondary education introductory methods:	
EDCI416 or EDCI410 or EDCI457 or EDCI411 or EDCI426	Curriculum & Instruction in Secondary Education: English, Speech, Theatre Methods I: K-12 Foreign Language Methods and Technology Teaching and Learning Middle School Mathematics Curriculum & Instruction in Secondary Education Science Materials and Resources in Social Studies	3

Other Electives (optional):
EDCI280 - Introduction to Teaching (3)
EDCI386 - Experiential Learning (3)

A total of 15 credits is required. All courses presented for the minor must be passed with a grade of "C" or better. A cumulative GPA of 2.5 is required for enrollment in the secondary education introductory methods course (EDCI 410, 411, 416, 426, 457). No more than six of the required credits (or two courses) may be taken at an institution other than the University of Maryland, College Park.

Soil Science

Environmental Science and Technology (ENST)
1457 Animal Sciences Building, 301-405-1193
www.enst.umd.edu

The minor will provide students with a sophisticated understanding of the soil resources, its development, characteristics, and principles for its use and management. Building on a basic introduction to the broad field of soil science, the program is completed by adding four or five upper division soils courses balanced between underlying principles and field applications.

All courses presented for the minor must be passed with a grade of C or better. Declared majors in the Conservation of Soil, Water and Environment Area of Concentration of NRSC or the Land and Water option in ENSP may not also minor in Soil Sciences.

Advising system for the minor:
The ENST Department has mandatory advising for each of its major and minor programs. Students are required to meet with their advisor at least twice a year.

Curriculum:

ENST 200	Fundamentals of Soil Science	4

Select 13 credits from the ten courses listed below. At least two courses must be from Group A.

Group A - Underlying Principles

ENST 411	Principles of Soil Fertility	3
ENST 414	Soil Morphology, Genesis & Classification	4
ENST 417	Soil Hydrology and Physics	3
ENST 421	Soil Chemistry	4
ENST 422	Soil Microbiology	3

Group B - Applications

ENST 308	Field Soil Morphology	1
ENST 413	Soil and Water Conservation	3
ENST 415	GIS Applications in Soil Science	4
ENST 423	Soil-Water Pollution	3
ENST 430	Wetland Soils	3

Total Credits: A minimum of 17 credits are required to complete this minor.

Students attempting this minor will need MATH 113 or higher. There are a total of 17 required credits in ENST classes, plus a 4 credit CHEM prerequisite. Depending on the pre-requisites needed and the optional courses selected and pre-requisites, students will take between 17 and 24 credits.

This minor is particularly relevant to students majoring in Agricultural and Resource Economics, Geology, Geography, Environmental Science and Policy, Biology, Biochemistry, Chemistry, Anthropology, Architecture, Agriculture Science and Technology, Horticulture and Crop Production, Animal Science, Landscape Architecture, Parks and Planning, Bioengineering, Civil Engineering, Environmental Engineering, Environmental Science and Technology, Natural Resources Management.

Special Education

Dr. Dawn Molloy, 1235 Benjamin Bldg, 301-405-6485
dmolloy@umd.edu
www.education.umd.edu/EDSP/

The minor in Special Education provides opportunities for undergraduate students to enroll in a sequence of education courses to determine if working with students with disabilities is a viable career option. For students interested in pursuing this career option, a one-year M.Ed. program, leading to certification as a special educator, is also available.

- 18 credits are required for this minor
- Two courses (6 credits) may overlap with a student's major

- Students pursuing the minor must select one of three age-based specializations: Early Childhood, Elementary, or Secondary Special Education.
- The minor incorporates coursework to meet the *Maryland State Department of Education (MSDE) reading requirements* that are part of the special education teacher certification requirements.
- A cumulative 2.5 GPA and junior status (60 credits) is required for enrollment in all professional education courses (i.e., all courses required for the minor except EDSP 210/470).
- All courses for the minor must be passed with a grade of "C" or better.
- No more than two courses (6 credits) may be taken at an institution other than the University of Maryland

Core Courses required for the Minor:

EDSP210/470	Introduction to Special Education
EDSP413	Behavior & Classroom Management in Special Education
EDSP415	Assessment in Special Education
EDSP416	Reading & Writing Instruction in Special Education I

Additional Courses Required for Early Childhood Special Education:

EDHD425	Language Development & Reading Acquisition
EDSP423	Assessment in Early Childhood Special Education

Additional Courses Required for Elementary Special Education:

EDHD425	Language Development & Reading Acquisition
EDSP485	Assessment & Instruction in Mathematics in Special Education

Additional Courses Required for Secondary Special Education:

EDHD426 **or** EDCI463	Cognition & Motivation in Reading: Reading in Content Areas **or** Reading in the Secondary School
EDSP485	Assessment & Instruction in Mathematics in Special Education

Minor and M.Ed. Teacher Certification Program For students interested in pursuing special education teacher certification, a one year M.Ed. program is available after completing the 18-hour minor in special education and an undergraduate degree. To be admitted to this M.Ed. Special Education program, students must apply to the graduate school (www.gradschool.umd.edu) during their senior year and pass the Praxis I at scores established by the Maryland State Department of Education www.education.umd.edu/studentinfo/praxis.html . All teacher candidates at the University of Maryland must pass **Praxis I and Praxis II** prior to student teaching.

Students seeking a minor in special education must first meet with the EDSP Teacher Preparation Coordinator. For further information or to declare a Minor in Special Education please contact Dr. Dawn Molloy, 1235 Benjamin Bldg, 301-405-6485 or dmolloy@umd.edu.

Spanish Language and Cultures

School of Languages, Literatures and Cultures (SLLC)
www.spanish.umd.edu

The minor in Spanish Language and Cultures is a series of five courses in Spanish to be chosen in consultation with the departmental advisor. Courses taken through Study Abroad programs may be applied. This 15 credit minor will provide students with a solid background in linguistic, cultural and literary aspects of the study of Spanish.

Students may choose from the following courses. A minimum of 9 credits must be on the 300 or 400 level.

SPAN 206 Review of Oral and Written Spanish for Native Speakers Educated in the US
SPAN 207 Reading and Writing in Spanish
SPAN 221 Introduction to Literature
SPAN 301 Advanced Grammar and Composition I
SPAN 302 Advanced Grammar and Composition II
SPAN 306 Spanish II for Native Speakers
SPAN 307 Oral Communication Skills for Native Speakers of Spanish
SPAN 310 Spanish Phonetics
SPAN 311 or 312 Advanced Conversation I or Advanced Conversation II
SPAN 315 Commercial Spanish I
SPAN 316 Practicum in Translation I
SPAN 317 Translation II
SPAN 318 Translation of Technical Texts
SPAN 321 Survey of Spanish Literature I
SPAN 322 Survey of Spanish Literature II
SPAN 323 Survey of Latin American Literature I

SPAN 324 Survey of Latin American Literature II
SPAN 325 Spanish Civilization I
SPAN 326 Spanish Civilization II
SPAN 346 Latin American Civilization I
SPAN 347 Latin American Civilization II
SPAN 356 Literary Translation I
SPAN 357 Literary Translation II
SPAN 415 Commercial Spanish II
SPAN 422 Cross-Cultural Communication
SPAN 425 Introduction to Hispanic Linguistics I: Basic Concepts
SPAN 426 Introduction to Hispanic Linguistics II: Language In Use
SPAN 448 Special Topics in Latin American Civilization
SPAN 449 Special Topics in Spanish Civilization
All literature courses on the 400 level

- All courses must be taught in Spanish.
- Native or heritage learners of Spanish should seek the advice of the Undergraduate Advisor for Spanish before choosing their courses.
- The minor is open to all students except Spanish majors. A grade of "C" or better is required in each class.
- A maximum of 6 credits may be applied to the minor from courses taken at other institutions. However, a maximum of 9 credits may be applied from aUniversity of Maryland study abroad program.

Spanish Language, Business, and Cultures

School of Literatures, Languages and Cultures (SLLC)
www.spanish.umd.edu

The minor in Spanish Language, Business, and Cultures is a series of five courses in Spanish to be chosen in consultation with the departmental advisor. Courses taken through Study Abroad programs may be applied. This 15 credit minor will provide students with a solid background in language, culture, and concepts important for business in the Spanish speaking world.

Minor Requirements:

A. Students must complete SPAN 315 Commercial Spanish I and either SPAN 415 Commercial Spanish II or SPAN 422 Cross-Cultural Communication.

B. Students may choose from the following courses to complete the other 9 credits. A minimum of 9 credits must be on the 300 or 400 level.

SPAN 206 Review of Oral and Written Spanish for Native Speakers Educated in the US
SPAN 207 Reading and Writing in Spanish
SPAN 221 Introduction to Literature
SPAN 301 Advanced Grammar and Composition I
SPAN 302 Advanced Grammar and Composition II
SPAN 306 Spanish II for Native Speakers
SPAN 307 Oral Communication Skills for Native Speakers of Spanish
SPAN 310 Spanish Phonetics
SPAN 311 Advanced Conversation I or
  SPAN 312 Advanced Conversation II
SPAN 316 Practicum in Translation I
SPAN 317 Translation II
SPAN 318 Translation of Technical Texts
SPAN 321 Survey of Spanish Literature I
SPAN 322 Survey of Spanish Literature II
SPAN 323 Survey of Latin American Literature I
SPAN 324 Survey of Latin American Literature II
SPAN 325 Spanish Civilization I
SPAN 326 Spanish Civilization II
SPAN 346 Latin American Civilization I
SPAN 347 Latin American Civilization II
SPAN 356 Literary Translation I
SPAN 357 Literary Translation II
SPAN 425 Introduction to Hispanic Linguistics I: Basic Concepts
SPAN 426 Introduction to Hispanic Linguistics II: Language In Use
SPAN 448 Special Topics in Latin American Civilization
SPAN 449 Special Topics in Spanish Civilization
All literature courses on the 400 level

- All courses must be taught in Spanish. Native or heritage learners of Spanish should seek the advice of the Undergraduate Advisor for Spanish before choosing their courses.
- The minor is open to all students except Spanish majors. A grade of "C" or better is required in each class.
- A maximum of 6 credits may be applied to the minor from courses taken at other institutions. However, a maximum of 9 credits may be applied from aUniversity of Maryland study abroad program.

Sport Commerce and Culture

Kinesiology (KNES)
2351 School of Public Health Building, 301-405-2450
www.hhp.umd.edu/KNES

The Minor in Sport Commerce and Culture has been suspended and currently is not accepting students to the program.

The minor in Sport Commerce and Culture provides students with a unique opportunity to study the structure and experience of contemporary sport culture from an interdisciplinary perspective rooted in theories and methods largely - but not exclusively - drawn from anthropology, cultural studies, economics, gender studies, history, media and communication studies, psychology, race and ethnic studies, sociology, and urban studies. The minor requires 18 credits:

		Credits
	Required courses	**6**
KNES287	Sport in American Society	3
KNES293	History of Sport in America	3
	N.B. These courses fulfill CORE SB/D1 and SH2 requirements	
	Elective Courses	**12**
	Any four of the following 3-credit courses	
KNES240	Exploring Cultural Diversity Through Movement	3
KNES350	The Psychology of Sports	3
KNES351	Contemporary Issues in American Sport	3
KNES355	Sport Management	3
KNES357	Sport and Culture in the Global Marketplace	3
KNES451	Children and Sport: A Psychosocial Perspective	3
KNES483	Sport Marketing and Media	3
KNES484	Sporting Hollywood	3
KNES485	Sport and Globalization	3
KNES486	Politics and Economics of Organized Contemporary Sport	3
	Please Note: *1) Not all elective courses are offered every year.* *2) Temporary courses may be added to this list dependent on the Minor advisor's approval.* *3) Relevant courses from other departments may be added to the list dependent on the Minor advisor's approval.*	

Mathematics (MATH)
1117 Mathematics Building, 301-405-5053
www.math.umd.edu

The Department of Mathematics offers a Minor in Statistics for students whose majors are not mathematics. The goal of the Minor in Statistics is to provide the student with a substantial number of courses that are statistical in nature and involve a substantial amount of mathematics.

The requirements entail 16 credits, from I - IV:

I. MATH241 - Calculus III (Multivariable Calculus) (4 credits)

II. One of the three pairs of 3-credit courses: (6 credits)

STAT400 and STAT401
STAT410 and STAT420
STAT410 and STAT401

III. STAT430 (3 credits)

IV. One of the courses in a - e (6 credits):

(a) STAT405
(b) STAT440
(c) STAT470
(d) A third course in (II) not already taken to satisfy (II)
(e) ECON422

Other issues related to the Minor in Statistics:

- The Minor in Statistics is NOT open to Mathematics Majors.
- The student will need to achieve at least a C (2.0) in each course for the Minor in Statistics.
- A student may use a maximum of 2 courses to satisfy the requirements of both a major and the Minor in Statistics.
- No more than 1 of the courses for the Minor in Statistics may be taken at an institution other than the University of Maryland, College Park.

The departmental advisor for this program is Professor Paul Smith.

Surficial Geology

Geology (GEOL)

1115 Geology Building, 301-405-4365
www.geol.umd.edu

This undergraduate minor recognizes concentrated study in Surficial Geology, a designated field in the College Of Computer, Mathematical, and Physical Sciences. The award of a minor will be noted on the student's transcript at the time of graduation.

This minor may be earned by students not majoring in Geology and are administered by the Geology Undergraduate Studies Director. A grade of "C" or better must be earned in all courses required for the minor.

		Credits
GEOL100/110	Physical Geology/Lab, **or**	4
GEOL120/110	Environmental Geology/Lab	4
GEOL123	Causes and Implications of Global Change	3
GEOL340	Geomorphology	4
	Two from:	
GEOL342	Sedimentation and Stratigraphy	4
GEOL451	Groundwater	3
GEOL452	Watershed and Wetland Hydrology	3
GEOL331	Principles of Paleontology	4
GEOL499	Special Problems in Geologoy	3

Terrorism Studies

College of Behavioral and Social Sciences (BSOS)
2148 Tydings Hall, 301-405-1697
www.start.umd.edu
www.bsos.umd.edu
bsosque@bsos.umd.edu

The Terrorism Studies program focuses on exploring the origins and motivations of terrorism based on theoretical understandings of individual and group behavior. Students also explore the impacts of the threat of terrorism on individuals and communities as well as strategies for preventing, deterring, mitigating, and responding to terrorist threats. For more information about the minor, please visit: www.start.umd.edu

Students are required to take the following three courses:

- **BSOS 330: Terrorist Motivations and Behaviors** (3 credits). This course explores theories explaining the formation of terrorist groups and the motivations behind terrorist behavior, building upon theories from social psychology, sociology, political science, criminology, and history. This course draws heavily from historical examples as well as current examples of international and domestic terrorist groups around the world.
- **BSOS 331: Responses to Terrorism** (3 credits). This course examines the impact of terrorism on groups and individuals and explores how communities have prepared and ideally should prepare in the face of potential terrorist threats. This course draws from anthropology, criminology, economics, history, political science, social psychology, and sociology.
- **BSOS 332: The Practice of Terrorism Studies** (5 credits). This seminar serves as the capstone for the minor program. As part of the course, students complete an approved internship or conduct a relevant, original research project. Students also meet regularly with an instructor to learn and apply academic and professional analytical tools relevant to the study of terrorism. The course includes visits from guest speakers working in the field of terrorism studies, and students participate in a terrorism-prevention tabletop exercise.

In addition to the three new courses, students must take one 3-credit course on research methods, to be drawn from courses in any discipline, including: African-American Studies; Applied Mathematics and Scientific Computation; Biological Sciences; Criminology and Criminal Justice; Communications; Economics; Civil Engineering; Electrical Engineering; Fire Protection Engineering; Family Studies; Geography; Government and Politics; History; Health; Latin American Studies; Psychology; Sociology; Statistics; and Survey Methodology.

To satisfy the final requirement, students must enroll in one 3-credit elective related to terrorism studies. START staff compile a list of courses being offered each semester that satisfy the elective requirement. Students are also encouraged to enroll in courses from the Washington, DC consortium to satisfy the elective requirement, thereby drawing on the unique, existing resources present throughout the Washington, DC metropolitan area.

U.S. Latina/o Studies

College of Arts and Humanities
1208 Cole, 301-405-2931
www.umd.edu/wmst

The minor, which requires a total of 15 credits, is intended for students who wish to develop a specialization in U.S. Latina/o Studies alongside their degree pursuits. It is optimal for students engaged in work with U.S. Latina/o communities in a variety of professions and academic fields including history, literature, education, urban studies and planning, health care, social services, business, government, public policy, among others.

Requirements (15 credits)

A. Two Lower-Level Foundation Courses (6 credits) - All students are required to take the two foundational courses:

USLT 201/U.S. Latina/o Studies I: An Historical Overview to 1960s
USLT 202/US. Latina/o Studies II: A Contemporary Overview, 1960s-Present.

B. One Upper-Level Course (3 credits)

All students are required to take the upper-level course: USLT 488/Senior Seminar in U.S. Latina/o Studies

C. Two Upper Level Elective Courses (6 credits)

In addition to the three required foundational courses, students will select two elective courses in consultation with the USLT advisor:

> The elective courses will come from the following categories: Humanities, Social Sciences, Languages, and Education. Students may not take both courses in the same category.

For these electives, students can choose USLT 498/Special Topics in U.S. Latina/o Studies and from a list of pre-approved courses offered through other departments or programs. Elective courses will explore the historical, cultural, political, economic, and sociological dimensions of U.S. Latina/o experiences. These courses will be approved by the faculty advisory committee. Additional courses that include comparative U.S. Latino content, such as in LASC or GVPT, would be eligible for inclusion in the minor with the approval of the USLT advisor.

Minor in Military Studies

The minor in Military Studies provides students with the opportunity to study the U.S. military and more specifically the U.S. Air Force. Students seeking a minor in Military Studies are not required to be members of the Air Force ROTC program. This minor enables students to develop a secondary academic experience which may serve them in the future. The minor may also alert potential employers to the student's knowledge in a minor field of study.

The Military Studies minor consists of the courses identified below (Required and Electives), and is open to any student at the University of Maryland. Students seeking a minor in Military Studies must be approved by the Director of Air Force ROTC and be advised by instructional personnel in that office.

A. Required Courses (12 credits)
All students are required to take the four upper-level Air Science courses.
ARSC 300: Management and Leadership I (3 credits)
ARSC 301: Management and Leadership II (3 credits)
ARSC 400: National Security Forces in Contemporary American Society I (3 credits)
ARSC 401: National Security Forces in Contemporary American Society II (3 credits)

At the 300 level, students focus on case studies in effective leadership, management, and team-building. Readings are concerned with topics such as accountability, motivation, teamwork, and ethical and moral leadership. These exercises help students develop critical thinking and problem solving skills, as well as effective professional writing.

At the 400 level, students study military policies, doctrine, and strategy, especially as related to areas of the world that are in crisis or transition. Special units are included on Europe, South Asia, East Asia, Latin America, Russia, and the Middle East to prepare students to function effectively in today's multi-ethnic, multi-cultural societies at home and abroad. Students also explore problem areas in military personnel management, including sexual harassment awareness, suicide awareness, and guidelines for working with civilian personnel. Capstone projects and activities for each student are part of the 400-level curriculum.

B. Elective Courses (6 credits)
In addition to the four required courses, students complete two additional course, one each from Global Affairs and Military Affairs as listed below. Other courses may be substituted with approval of the minor advisor and Advisory Committee. Students will be advised on the options for seeking BMGT courses.

Global Affairs
GVPT 280: Comparative Politics and Governments (3) (GVPT 100)
HIST 224: Modern Military History, 1494 - 1815 (3)
HIST 225: Modern Military History, 1815 - Present (3)
HIST 240: Europe in the Twentieth Century (3)
HIST 266: The United States in World Affairs (3)
HIST 314: Crisis and Change in the Middle East & Africa (3)

Military Affairs
BMGT 360: Human Resource Management (3)
BMGT 364: Management and Organization Theory (3)
GVPT 354: Peacebuilding, Post-Conflict Reconstruction, & International Development (3) (Soph standing)
GVPT 360 Introduction to International Negotiations (3)
SOCY 462: Women in the Military (3) (6 credits of SOCY or department permission)
SOCY 463: Sociology of Combat (3) (6 credits of SOCY or department permission)
SOCY 464: Military Sociology (3) (6 credits of SOCY or department permission)
SOCY 465: The Sociology of War (3) (6 credits of SOCY or department permission)

Restrictions

- Courses completed in one minor may not be used to satisfy the requirements in another minor.
- No more than six of the required credits (or two courses) may be taken at an institution other than the University of Maryland, College Park.
- At least six upper division credits applied to the minor must be taken at the University of Maryland, College Park.
- All courses presented for the Minor must be passed with a grade or "C" or better.
- Course work other than that listed in section IIB must be approved by the Air Force ROTC advisor and the ROTC Advisory Committee.

Israel Studies

www.languages.umd.edu/AsianEastEuropean/hebrew/

The minor in Israel Studies consists of a total of 18 credits (generally 6 courses). Students will study of the history, culture and political structure of Israel and its place in the Middle East, including Hebrew and/or Arabic language . Coursework must be distributed to meet the overlapping requirements below.

Required courses - 9 credits

JWST342/HIST376	History of Zionism and Israel	3 credits
JWST448	Seminar in Israel Studies *(prereq:JWST32/HIST376)*	3 credits
Middle East Studies	One course in the area of Middle East Studies *(see following list)*	3 credits

To fulfill the Middle East Studies requirement, students must take one of the course listed below. Other courses may be substituted in consultation with the advisor. Students may also take one additional course from this list as an elective for credit toward the Minor.

ARAB221	The Arab World Today through Readings in Translation	
HIST120	Islamic Civilization	
HIST314	Crisis and Change in the Middle East	*prereq: one prior History course*
HIST491	History of the Ottoman Empire	
GVPT455	Contemporary Middle Eastern Politics	*prereq: GVPT 280 or 282*

Elective Courses - 9 or more credits

JWST 142 Introduction to Israel Studies
*HEBR 111, 112, 211, 212
* ARAB 104, 105, 107, 204, 205, 207, 304, 305
JWST 304 Critical Approaches to Israeli Culture
HEBR 313 Conversation and Composition I
HEBR 314 Conversation and Composition II
HEBR 381 Introduction to Hebrew Cultural Studies (taught in Hebrew)
HEBR 382 Israeli Media (taught in Hebrew)
JWST 478 Readings in Modern Hebrew (if topic appropriate: must be approved)
JWST 471 Modern Hebrew Literature in Translation
JWST 249 Special Topics in Israel Studies
JWST 349 Special Topics in Israel Studies
JWST 449 Advanced Special Topics in Israel Studies
JWST 488 Independent Study in Israel Studies

* No more than 3 credits of language instruction below the 300 level may be credited toward the Minor.

Restrictions

- Coursework must include least 9-upper division credits, of which six must be taken at the University. These would include credits earned in UM study abroad programs as applicable.
- A student may use a maximum of six credits (or two courses) to satisfy the requirements of both a major and a minor. Courses completed in one minor may not be used to satisfy the requirements in another minor.
- Up to two courses may be taken at another university if the courses are approved in advance by the Minor Advisor as substantially similar in quality to these and the subject matter is relevant. These would include credits earned in non-UM study abroad programs as applicable.
- No courses with an earned grade below "C" (2.0) may count towards a minor.

Approved Courses

AASP -- African American Studies

AASP 100 Introduction to African American Studies (3) Significant aspects of the history of African Americans with particular emphasis on the evolution and development of black communities from slavery to the present. Interdisciplinary introduction to social, political, legal and economic roots of contemporary problems faced by blacks in the United States with applications to the lives of other racial and ethnic minorities in the Americas and in other societies.

AASP 101 Public Policy and the Black Community (3) Formerly AASP300. The impact of public policies on the black community and the role of the policy process in affecting the social, economic and political well-being of minorities. Particular attention given to the post-1960 to present era.

AASP 200 African Civilization (3) A survey of African civilizations from 4500 B.C. to present. Analysis of traditional social systems. Discussion of the impact of European colonization on these civilizations. Analysis of the influence of traditional African social systems on modern African institutions as well as discussion of contemporary processes of Africanization.

AASP 202 Black Culture in the United States (3) The course examines important aspects of African American life and thought which are reflected in African American literature, drama, music and art. Beginning with the cultural heritage of slavery, the course surveys the changing modes of black creative expression from the 19th-century to the present.

AASP 297 Research Methods in African American Studies (3) Prerequisite: AASP100 or AASP202. For AASP majors only. Not open to students who have completed AASP299R. Credit will be granted for only one of the following: AASP297 or AASP299R. Formerly AASP299R. Introduces African American Studies majors to the basic research skills, methodologies, sources, and repositories for studying African Diaspora. Students will be required to select a research topic, write a research proposal, develop an annotated bibliography, and in the process will be prepared for completing their senior thesis or other significant writing projects necessary to fulfill the requirements of the major.

AASP 298 Special Topics in African American Studies (3) Repeatable to 6 credits if content differs. An introductory multi-disciplinary and inter-disciplinary educational experience to explore issues relevant to black life, cultural experiences, and political, economic, and artistic development.

AASP 299 Selected Topics in African American Studies (1-3) Repeatable to 6 credits if content differs. An introductory multi-disciplinary academic exploration of the cultural, political, and economic issues relevant to Africans and African-Americans.

AASP 301 Applied Policy Analysis and the Black Community (3) Prerequisite: (AASP101 and ECON200) or (AASP101 and ECON201). Recommended: One semester of statistics. Development and application of the tools needed for examining the effectiveness of alternative policy options confronting minority communities. Review policy research methods used in forming and evaluating policies. Examination of the policy process.

AASP 303 Computer Applications in African American Studies (3) Prerequisite: STAT100 or SOCY201 or MATH111 or equivalent. Introduction to statistics and database processing software used in model estimation and simulation in policy analysis. Special emphasis on applications for applied research on policy problems confronting minority communities.

AASP 305 Theoretical, Methodological and Policy Research Issues in African (3) American Studies Prerequisites: AASP301 and (STAT100 or BMGT230 or PSYC200 or SOCY201 or ECON321 or equivalent course with permission of department). Formerly AASP401. Theories and concepts in the social and behavioral sciences relating to problems in minority communities. Issues include validity and soundness of theoretical arguments, epistemological questions of various methodologies and the relationship between policy making and policy research.

AASP 310 African Slave Trade (3) Prerequisite: AASP100 or AASP202 or permission of department. Formerly AASP311. The relationship of the slave trade of Africans to the development of British capitalism and its industrial revolution; and to the economic and social development of the Americas.

AASP 312 Social and Cultural Effects of Colonization and Racism (3) Prerequisite: AASP100 or AASP202. A comparative approach to the study of the social and cultural effects of colonization and racism on black people in Africa, Latin America and in the United States--community and family life, religion, economic institutions, education and artistic expression.

AASP 313 Black Women in United States History (3) Sophomore standing. Also offered as WMST314 and HIST329E. Credit will be granted for only one of the following: AASP498W, AASP313, HIST329E, WMST314 or WMST498N. Formerly AASP498W. Black American women's history is examined from slavery to the present. The principal focus of the readings discussions and student assignments will be based upon gaining a fuller understanding of the effect of race, class and gender on the life cycles and multiple roles of Black women as mothers, daughters, wives, workers and social change agents. A variety of primary source materials on black women's experiences will be utilized.

AASP 314 The Civil Rights Movement (3) Prerequisite: AASP100 or HIST157. Survey of the twentieth century civil rights movement from the desegregation of UM Law School through the National Black Political Congress in Gary in 1972. Major themes include leadership, legal and constitutional challenges, non-violence, Black Power, and Pan-Africanism.

AASP 386 Experiential Learning (3-6) Prerequisite: Permission of department. Junior standing.

AASP 395 Fundamentals of Quantitative Research in Socio-Cultural Perspective (3) Junior standing. For AASP majors only. Introduction to quantitative methods for African American Studies majors in the cultural and social analysis concentration. Basics of survey design and experimental design and data analysis and use of statistical software programs.

AASP 396 Independent Study Non-Thesis Option (3) Two hours of lecture and one hour of discussion/recitation per week. Prerequisites: AASP297 (formerly:AASP299R), and AASP386. Senior standing. For AASP majors only. Credit will be granted for only one of the following: AASP396 or AASP397. A research seminar that allows African American Studies majors to complete an independent study research project in lieu of completing the AASP397: Senior Thesis. Students will examine various concepts of race, gender, labor and ethnicity in the seminar lecture component to be applied toward their specific research projects.

AASP 397 Senior Thesis (3) Prerequisite: Permission of department. Directed research in African American Studies resulting in the completion and defense of a senior thesis.

AASP 398 Selected Topics in the African Diaspora (3) Repeatable to 6 credits if content differs. Analysis of the historical experiences and cultures of Africans in the diaspora.

AASP 400 Directed Readings in African American Studies (3) Prerequisite: AASP100 or AASP202. The readings will be directed by the faculty of African American Studies. Topics to be covered will be chosen to meet the needs and interests of individual students.

AASP 402 Classic Readings in African American Studies (3) Prerequisite: AASP100 or AASP202. Classic readings of the social, economic and political status of blacks and other minorities in the United States and the Americas.

AASP 411 Black Resistance Movements (3) Prerequisite: AASP100. A comparative study of the black resistance movements in Africa and America; analysis of their interrelationships as well as their impact on contemporary pan-Africanism.

AASP 441 Science, Technology, and the Black Community (3) Prerequisite: AASP100 or AASP202 or HIST255 or permission of department. Scientific knowledge and skills in solving technological and social problems, particularly those faced by the black community. Examines the evolution and development of African and African American contributions to science. Surveys the impact of technological changes on minority communities.

AASP 443 Blacks and the Law (3) Prerequisite: AASP100 or AASP202 or HIST255 or permission of department. The relationship between black Americans and the law, particularly criminal law, criminal institutions and the criminal justice system. Examines historical changes in the legal status of blacks and changes in the causes of racial disparities in criminal involvement and punishments.

AASP 468 Special Topics in Africa and the Americas (3) Repeatable to 6 credits if content differs. Cultural, historical and artistic dimensions of the African experience in Africa and the Americas.

AASP 478 Humanities Topics in African American Studies (3) Repeatable to 6 credits if content differs. Advanced studies in the humanities, often requiring prerequisites, focusing on the literary, artistic and philosophical contributions of Africans and African Americans.

AASP 483 Gender, Sexuality and the Black Family (3) Prerequisite: AASP100. Credit will be granted for only one of the following: AASP483 or AASP498F. Formerly AASP498F. Examining the historical, economic, social, and scholarly construction of African American family structures. The problematization of "Black matriarchy," hetero- and homosexuality, bi-racialism, and other efforts to "normalize" African Americans to conform to Eurocentric and religious concepts of family will be critically analyzed.

AASP 493 Feminist and Nationalist Thought in Black Communities (3) Prerequisite: AASP100 or AASP101. Credit will be granted for only one of the following: AASP493 or AASP499W. Formerly AASP499W. The historical and theoretical foundations of feminist and nationalist thought in Black Communities will be examined. Further, we will discover why feminist and nationalist thought has been routinely ignored or misrepresented as disparate, if not oppositional, themes in Black intellectual and political life.

AASP 498 Special Topics in Black Culture (3) Prerequisite: AASP100 or AASP202. Repeatable to 6 credits if content differs. Advanced study of the cultural and historical antecedents of contemporary African and African American society. Emphasis on the social, political, economic and behavioral factors affecting blacks and their communities. Topics vary.

AASP 499 Advanced Topics in Public Policy and the Black Community (3) Prerequisite: AASP301 or permission of department. Repeatable to 6 credits if content differs. Examination of specific areas of policy development and evaluation in black and other communities. Application of advanced tools of policy analysis, especially quantitative, statistical and micro-economic analysis.

AAST -- Asian American Studies

AAST 200 Introduction to Asian American Studies (3) The aggregate experience of Asian Pacific Americans, from developments in the countries of origin to their contemporary issues. The histories of Asian Pacific American groups as well as culture, politics, the media, and stereotypes, viewed from an interdisciplinary perspective.

AAST 201 Asian American History (3) Introduction to the history of Asian Americans in the United States and the Americas and to the field of Asian American Studies, from an interdisciplinary perspective. Topics include theories of race and ethnicity; Asian migration and diaspora to the Americas; Asian American work and labor issues; gender, family, and communities; nationalism and nativism, and anti-Asian movements; Asian Americans, World War II, the Cold War, and the issues in the civil rights & post-civil rights era.

AAST 222 Immigration and Ethnicity in America (3) Recommended: AAST201. Also offered as HIST222. Credit will be granted for only one of the following: AAST222, AAST298A, HIST219L or HIST222. Formerly AAST298A. The history of immigration and the development of diverse populations in the United States are examined. Topics include related political controversies, the social experiences of immigrants, ethnicity, generations, migration, inter-group relations, race and diversity in American culture.

AAST 233 Introduction to Asian American Literature (3) Also offered as ENGL233. Not open to students who have completed ENGL233, AAST298L. Credit will be granted for only one of the following: ENGL233, AAST233, or AAST298L. Formerly AAST298L. A survey of Asian American literature with an emphasis on recurrent themes and historical context.

AAST 298 Special Topics in Asian American Studies (3) Repeatable to 6 credits if content differs. An introductory multidisciplinary and interdisciplinary educational experience to explore issues relevant to Asian American life, cultural experiences, and political, economic, and artistic development.

AAST 298N Filipino American Studies (3)

AAST 378 Experiential Learning (3) Prerequisite: AAST200; AAST201; permission of department. Field experience in professional organizations and appropriate private and governmental agencies serving the Asian American community.

AAST 384 Senior Seminar (3) Prerequisites: AAST200 or AAST201; and permission of department. Career and professional opportunities. Overview of and field work in professional organizations and appropriate private and governmental agencies serving the Asian American community.

AAST 388 Independent Research (1-3) Prerequisites: AAST200 or AAST201; and permission of department. Repeatable to 6 credits if content differs. Directed research in Asian American Studies resulting in the completion of a thesis.

AAST 398 Selected Topics in Asian American Studies (3) Repeatable to 6 credits if content differs. Study of a specific theme or issue involving the Asian America experience.

AAST 420 Asian American Women: The Social Construction of Gender (3) Also offered as WMST420. Not open to students who have completed WMST420. Credit will be granted for only one of the following: AAST420 or WMST420. Examines the intersection of gender, race and class as it relates to Asian American women in the United States; how institutionalized cultural and social statuses of gender, race, ethnicity and social class produce and reproduce inequality in the lives of Asian American women.

AAST 424 Sociology of Race Relations (3) Prerequisite: Six credits in sociology or permission of department. Also offered as SOCY424. Not open to students who have completed SOCY424. Credit will be granted for only one of the following: AAST424 or SOCY424. Analysis of race-related issues, with a primary focus on American society. The historical emergence, development, and institutionalization of racism; the impact of racism on its victims; and racially based conflict.

AAST 498 Advanced Topics in Asian American Studies (3) Repeatable to 6 credits if content differs. Advanced study of the cultural and historical antecedents of contemporary Asian American society. Emphasis on the social, political, economic, and behavioral factors affecting Asian Americans and their communities.

AAST 499 Senior Thesis (3) Prerequisite: AAST200; AAST201; permission of department. For AAST majors only. Repeatable to 6 credits if content differs. Under the supervision of faculty, research regarding a specific topic of the Asian American experience will be completed.

AGNR -- Agriculture and Natural Resources

AGNR 270 Technology Training Seminar (2-3) Two hours of discussion/recitation per week. For AGNR major only or by permission of department. Also offered as BSCI279. Credit will be granted for only one of the following: AGNR270 or BSCI279. A hands-on training seminar about pedagogical applications of information technology and mastery of several technical skills. Special emphasis is placed on gainfully understanding technological issues such as copyright and intellectual property, accessibility, and usability.

AGNR 302 Introduction to Agricultural Education (2) Formerly AGRI302. An overview of the job of the teacher of agriculture; examination of agricultural education programs for youth and adults.

AGNR 311 Teaching Secondary Vocational Agriculture (3) Formerly AGRI311. A comprehensive course in the work of high school departments of vocational agriculture. It emphasizes particularly placement, supervised farming programs, the organization and administration of future farmer activities, and objectives and methods in all-day instruction.

AGNR 313 Student Teaching (5) Prerequisite: Satisfactory academic average and permission of department. Formerly AGRI313. Full-time student teaching in an off-campus student teaching center under an approved supervising teacher of agriculture, participating experience in all aspects of the work of a teacher of agriculture.

AGNR 315 Student Teaching (1-4) Prerequisite: Satisfactory academic average and permission of department. Formerly AGRI315. Full-time observation and participation in work of teacher of agriculture in off-campus student teaching center. Provides students opportunity to gain experience in the summer program of work, to participate in opening of school activities, and to gain other experience needed by teachers.

AGNR 323 Developing Youth Programs (3) Formerly AGRI323. Concepts involved in planning and executing nonformal educational programs developed to meet the needs of youth. Emphasize the identification of opportunities;

needs, and problems of youth in all socioeconomic levels; analysis of methods of working with youth groups and developing volunteer staff.

AGNR 333 Agriculture's Progression toward Industrialization (3) Junior standing. A survey reading course. Plots the global progression of agriculture toward industrialization and conflicts along the way. Reviews major trends, highlights contrasting perspectives, and reviews contemporary issues in agriculture and agricultural development.

AGNR 386 Experiential Learning (3-6) Prerequisite: Permission of department. Formerly AGRI386.

AGNR 388 Honors Thesis Research (3-6) Prerequisite: Admission to AGNR Honors Program. Repeatable to 6 credits if content differs. Formerly AGRI388. Undergraduate honors thesis research conducted under the direction of an AGNR faculty member in partial fulfillment of the requirements of the College of AGNR Honors Program. The thesis will be defended to a faculty committee.

AGNR 400 International Agricultural Extension and Development (3) Formerly AGRI400. Examination of the social and ethical issues that shape extension's role in the agriculture sector of countries worldwide and that determine its contribution to international development. Review of a wide range of literature from scholars, governments, and international organizations.

AGNR 401 Agricultural Support Systems in Developing Countries (3) Formerly AGRI401. Globalization and other forces for changes are examined for their impact on agriculture and the agricultural education, research, and extension knowledge support systems that promote agricultural development. The basic and often conflictive concepts relating to agriculture, agricultural development and agricultural research and extension. The main focus is on public sector agricultural and rural extension services and the diversity of contemporary institutional reforms that these services are experiencing in developing countries.

AGNR 422 International Agriculture Science and Culture (6) Four hours of lecture and six hours of discussion/recitation per week. Prerequisite: Permission of department. Immersion-based, intensive course of study in a foreign agricultural education setting. UM Students will study with local students in a variety of University classes and field experiences in agriculture, natural resources and environmental sciences, laboratory science, economics, education technology, etc. Students will learn customs, culture and language of the host country.

AGNR 423 Exploring International Agriculture (3) Prerequisite: Permission of department. Not open to students who have completed AGNR422. Immersion-based, intensive course of study in a foreign agricultural setting. Students may expect to have university classes and field experiences in one or more agriculture and natural resource disciplines. Students will learn about the culture and customs of the host country as well as undertake at least an introductory language course.

AGNR 467 Agricultural Knowledge and Institutional Change in Latin America (3) Junior standing. The roles of agricultural research and extension in furthering agricultural development and trade in Latin America and the implications of contemporary reforms of these institutions. A review of basic concepts relating to agriculture and its knowledge systems, such as agricultural research, education and extension with emphasis on Latin America's cultural and institutional diversity. Students will be introduced to career possibilities in national and international organizations involved with development assistance.

AGNR 489 Field Experience (1-4) Prerequisite: Permission of department. Repeatable to 4 credits if content differs. Formerly AGRI489. Credit according to time scheduled and organization of the course. A lecture series organized to study in depth a selected phase of agriculture not normally associated with one of the existing programs.

AGNR 499 Special Problems (1-3) Formerly AGRI499.

AMSC -- Applied Mathematics & Scientific Computation

AMSC 420 Mathematical Modeling (3) Prerequisite: MATH241, MATH246, STAT400, MATH240 or MATH461; and permission of department. Also offered as MATH420. Credit will be granted for only one of the following: AMSC420, MAPL420, or MATH420. Formerly MAPL420. The course will develop skills in mathematical modeling through practical experience. Students will work in groups on specific projects involving real-life problems that are accessible to their existing mathematical backgrounds. In addition to the development of mathematical models, emphasis will be placed on the use of computational methods to investigate these models, and effective oral and written presentation of the results.

AMSC 452 Introduction to Dynamics and Chaos (3) Prerequisites: MATH240 and MATH246. Also offered as MATH452. Credit will be granted for only one of the following: AMSC452, MAPL452, or MATH452. Formerly MAPL452. An introduction to mathematical dynamics and chaos. Orbits, bifurcations, Cantor sets and horseshoes, symbolic dynamics, fractal dimension, notions of stability, flows and chaos. Includes motivation and historical perspectives, as well as examples of fundamental maps studied in dynamics and applications of dynamics.

AMSC 460 Computational Methods (3) Prerequisites: MATH240; and MATH241; and CMSC106 or CMSC114 or ENEE114. Also offered as CMSC460. Credit will be granted for only one of the following: AMSC/CMSC/MAPL460 or AMSC/CMSC/MAPL466. Formerly MAPL460. Basic computational methods for interpolation, least squares, approximation, numerical quadrature, numerical solution of polynomial and transcendental equations, systems of linear equations and initial value problems for ordinary differential equations. Emphasis on methods and their computational properties rather than their analytic aspects. Intended primarily for students in the physical and engineering sciences.

AMSC 462 Computer Science for Scientific Computing (3) Prerequisite: CMSC106 or CMSC131; and (AMSC460 or CMSC460); or permission of department. This course cannot be used toward the upper-level math requirement for MATH and STAT majors. Students who take CMSC311 or CMSC330 will not be given credit for this course. Also offered as CMSC462. Credit will be granted for only one of the following: AMSC462 or CMSC462. A survey of computer science for scientists and engineers. The goal is to enable the student to write efficient, well-organized programs for today's machines. Topics to be treated include computer organization, computer arithmetic, processes and operating systems, the memory hierarchy, comparison of the Fortran and C families of languages, compilers, the run time environment, memory allocation, preprocessors and portability, and documentation. Specific topics will vary from semester to semester.

AMSC 466 Introduction to Numerical Analysis I (3) Prerequisites: MATH240; and MATH241; and CMSC106 or CMSC114 or ENEE114. Also offered as CMSC466. Credit will be granted for only one of the following: AMSC/CMSC/MAPL460 or AMSC/CMSC/MAPL466. Formerly MAPL466. Floating point computations, direct methods for linear systems, interpolation, solution of nonlinear equations.

AMSC 477 Optimization (3) Prerequisites: (AMSC/CMSC/MAPL460, or AMSC/CMSC/MAPL466 or AMSC/CMSC/MAPL467) with a grade of C or better. Also offered as CMSC477. Credit will be granted for only one of the following: AMSC477, CMSC477 or MAPL477. Formerly MAPL477. Linear programming including the simplex algorithm and dual linear programs, convex sets and elements of convex programming, combinatorial optimization, integer programming.

AMSC 498 Selected Topics in Applied Mathematics (1-3) Repeatable to 6 credits if content differs. Formerly MAPL498. Topics in applied mathematics of special interest to advanced undergraduate students.

AMST -- American Studies

AMST 200 American Studies Portfolio I: Orientation (1) Pre- and corequisite: AMST201. For AMST majors only. Orientation to the major in American Studies, emphasizing the creation of an electronic portfolio documenting written and multimedia projects, internships and service-learning experiences.

AMST 201 Introduction to American Studies (3) Introduction to American cultural studies--past and present--by examining the concept of "self" in American autobiographical writing and the concept of "society" in accounts of various communities.

AMST 203 Popular Culture in America (3) An introduction to American popular culture, its historical development, and its role as a reflection of and influence on our culture and society.

AMST 204 Film and American Culture Studies (3) Exploration of the American film from a historical perspective, illustrating the motion picture's role as an institutional phenomenon, as a form of communication, and as a source of cross-cultural study.

AMST 205 Material Aspects of American Life (3) Historical survey of American material culture. Ways of describing and interpreting accumulated material evidence (e.g., buildings, town plans) introduced by stressing relationship between artifact and culture.

AMST 207 Contemporary American Cultures (3) World views, values, and social systems of contemporary American cultures explored through readings on selected groups such as middle-class suburbanites, old order Amish, and urban tramps.

AMST 211 Technology and American Culture (3) Historical and contemporary technological innovations in American society, with special emphasis on the humanities. Varied social and cultural responses to one contemporary technological issue e.g. (environmental pollution, genetic engineering, communications technology, and psychopharmacology).

AMST 212 Diversity in American Culture (3) Exploration of the role of diversity in the shaping of American culture. Special emphasis will be placed on the multicultural origins of American popular and material culture, such as foodways and entertainment, and on the experience of "Americanization."

AMST 260 American Culture in the Information Age (3) Credit will be granted for only one of the following: AMST260 or AMST298I. Formerly AMST298I. Examines the ways in which content and form of public information interact with the culture, families & individuals.

AMST 298 Selected Topics in American Studies (3) Repeatable to 6 credits if content differs. Cultural study of a specific theme or issue involving artifacts and documents from both past and contemporary American experience.

AMST 328 Perspectives on Identity and Culture (3) Repeatable to 9 credits if content differs. Analysis of the cultural aspect of identity formation and the role of individual or community identities in cultural production. Examination of cultural texts such as film, literature, fashion, artifacts, archival records, architecture, monuments, sports, and paintings.

AMST 330 Critics of American Culture (3) For American Studies major only or permission of instructor. Philosophies of American social purpose and promise. Readings from "classical" American thinkers, contemporary social commentators, and American studies scholars.

AMST 340 Introduction to History, Theories and Methods in American Studies (3) Prerequisite: Two AMST courses. Sophomore standing. For AMST majors only. Introduction to the process of interdisciplinary research, including research literatures, questions, first-hand sources and library and analytic methods in American Studies. Each student will craft a prospectus for original research.

AMST 388 Honors Thesis (3) Prerequisite: Admission to AMST honors program. Permission of the department. Senior standing. Repeatable to 3 credits if content differs. Individual research, thesis and oral defense. The research project will be conducted under the supervision of a faculty member.

AMST 398 Independent Studies (1-3) Prerequisite: Permission of department. Repeatable to 6 credits if content differs. Provides the student with the opportunity to pursue independent, interdisciplinary research and reading in specific areas of American culture studies.

AMST 418 Cultural Themes in America (3) Repeatable to 6 credits if content differs. Examination of structure and development of American culture through themes such as "growing up American," "culture and mental disorders," "race," "ethnicity," "regionalism," "landscape," and "humor."

AMST 428 American Cultural Eras (3) Repeatable to 6 credits if content differs. Investigation of a decade, period, or generation as a case study in significant social change within an American context. Case studies include "Antebellum America, 1840-1860," "American culture in the Great Depression."

AMST 429 Perspectives on Popular Culture (3) Repeatable to 6 credits if content differs. Topics in popular culture studies, including the examination of particular genres, themes, and issues.

AMST 432 Literature and American Society (3) Prerequisite: Prior course in AMST, SOCY, American literature, or American history. Examination of the relationship between literature and society: including literature as cultural communication and the institutional framework governing its production, distribution, conservation and evaluation.

AMST 433 American Humor (3) Credit will be granted for only one of the following: AMST418A or AMST433. Formerly AMST418A. American humor from the Colonial era through the present in genres including literature, journalism, graphic arts, performance, and modern media. How humor expresses and mediates important social and cultural concerns including politics, religion, race and ethnicity, gender and topical issues.

AMST 450 Seminar in American Studies (3) Prerequisite: Nine hours prior coursework in American Studies, including AMST201. Senior standing. For AMST majors only. Developments in theories and methods of American Studies scholarship, with emphasis upon interaction between the humanities and the social sciences in the process of cultural analysis and evaluation.

AMST 498 Special Topics in American Studies (3) Repeatable to 9 credits if content differs. Topics of special interest.

ANSC -- Animal Science

The following courses may involve the use of animals. Students who are concerned about the use of animals in teaching have the responsibility to contact the instructor, prior to course enrollment, to determine whether animals are to be used in the course, whether class exercises involving animals are optional or required and what alternatives, if any, are available.

ANSC 101 Principles of Animal Science (2) Two hours of lecture per week. A comprehensive overview of the application of biology in the care and use of animals that live in close association with humans including food animals, companion animals, lab animals, zoo animals, etc. The role of science in modern food production using animals will be emphasized. Offered in fall semester only.

ANSC 103 Principles of Animal Science Laboratory (1) Pre- or corequisite: ANSC101. Restricted to ANSC majors. Other students in the College of AGNR can contact the department for permission to enroll. Laboratory focusing on the application of biology in the care and use of animals that live in close association with humans including food animals, companion animals, lab animals, zoo animals, etc. Labs will include live animals. Offered in fall semester only.

ANSC 110 Pasture Management and Hay Production (2) Credit will be granted for only one of the following: ANSC110 or INAG116. Identification of forage species suitable for grazing and hay production for horses and other livestock. Crop production including: fertilization and nutrient management, irrigation and drought management, grazing management, weed identification and control, facility layout and design.

ANSC 211 Anatomy of Domestic Animals (3) Two hours of lecture and two hours of laboratory per week. Prerequisite: ANSC101, ANSC103, and BSCI105. For ANSC and ENSP (2299M) majors only. A systematic gross and microscopic comparative study of the anatomy of the major domestic animals. Special emphasis is placed on those systems important in animal production.

ANSC 212 Applied Animal Physiology (3) Prerequisite: ANSC211 or equivalent. The physiology of domesticated animals with emphasis on functions related to homeostasis, and the physiological adaptation to environmental influences.

ANSC 214 Applied Animal Physiology Laboratory (1) Three hours of laboratory per week. Pre- or corequisite: ANSC212. Application of physiological laboratory techniques to domestic and lab animals.

ANSC 220 Livestock Management (3) Prerequisite: ANSC101 and ANSC103. Management of meat animals including beef, sheep, and swine. This course will emphasize obtaining optimal efficiency of production through the integration of leading edge breeding, feeding, management, and marketing practices.

ANSC 232 Horse Management (3) Two hours of lecture and two hours of laboratory per week. Prerequisite: ANSC101 and ANSC103. Credit will be granted for only one of the following: ANSC232 or ANSC332. Formerly ANSC332. An introductory course on the care, management, and use of horses. Major topics include the industry, breeds, conformation, feeding, health, reproduction, facilities and business.

ANSC 233 Equine Behavior (2) Prerequisite: ANSC101, ANSC103, and ANSC232. Credit will be granted for only one of the following: ANSC489B or ANSC233. Formerly ANSC489B. Both normal and anomalous behavior of horses will be covered. Emphasis will be given to techniques based on knowledge of behavior that are known to be safe and effective in handling horses.

ANSC 235 Applied Small Ruminant Parturition (2) One hour of lecture and three hours of laboratory per week.

Prerequisite: grade of C/2.0 or better in ANSC101, ANSC103 and permission of department. Not open to students who have completed Lamb Watch. Popularly known as 'Lamb Watch', the course provides an immersion environment for learning and understanding pre- and post-natal care of ewes and lambs through direct, hands-on involvement in the birthing process and care of the neonate through weaning. Covered topics include zoonoses, basic reproductive physiology of the sheep, normal and abnormal delivery, management of lambs, qualitative assessment, breeding principles, etc.

ANSC 236 Equine Business Management (3) Prerequisite: ANSC232. Recommended: AREC250. Credit will be granted for only one of the following: ANSC236 or INAG232. The study and practice of applying decision-making skills and tools needed for operating a profitable equine boarding or training stable business.

ANSC 237 Equine Reproduction (2) Prerequisite: ANSC232. Credit will be granted for only one of the following: ANSC237 or INAG233. Students learn the fundamental skills necessary to manage equine reproductive services including anatomy and physiology of genital tracts, estrus detection, control of cycle, survey of reproductive techniques, infertility, mare, foal and stallion management, and equine genetics. One or two weekend laboratory sessions will be required.

ANSC 242 Dairy Cattle Management (3) Prerequisite: ANSC101 and ANSC103. Formerly: ANSC240 and ANSC241. All aspects of dairy production, including nutrition, reproduction, mastitis control, milking management, farmstead facilities, financial management and forage production.

ANSC 244 Dairy Cattle Type Appraisal (1) Two laboratory periods. Prerequisite: Permission of department. Laboratory. Analysis of dairy cattle type with emphasis on the comparative judging of dairy cattle.

ANSC 250 Companion Animal Care and Management (3) Prerequisite: BSCI105. Credit will be granted for only one of the following: ANSC250 and ANSC305. Formerly ANSC305. Care and management of the companion small animals. Species covered include the cat, dog, rodents, lagomorphs, reptiles, amphibians, birds and others as class interest and schedule dictate. Basic description, evolutionary development, breeding, nutritional and environmental requirements, and public health aspects will be presented for each species.

ANSC 252 Introduction to the Diseases of Wildlife (3) Two hours of lecture and one hour of discussion/recitation per week. Prerequisite: BSCI105 or equivalent or permission of department. The principal diseases of North American wildlife will be briefly considered. For each disease, specific attention will be given to the following: signs evidenced by the affected animal or bird, causative agent, means of transmission and effects of the disease on the population of the species involved.

ANSC 255 Introduction to Aquaculture (3) Two hours of lecture and two hours of laboratory per week. Prerequisite: ANSC101 and ANSC103; or an introductory biology course. Introduces the art and science of rearing aquatic animals and the essential principles of aquaculture. Students receive hands-on training in the methods required for successful husbandry and management of aquatic animals in their water environment.

ANSC 260 Laboratory Animal Management (3) Two hours of lecture and two hours of laboratory per week. Prerequisite: ANSC101 and ANSC103. Credit will be granted for only one of the following: ANSC260 or ANSC413. Formerly ANSC413. A comprehensive course in care and management of laboratory animals. Emphasis will be placed on physiology, anatomy and special uses for the different species. Disease prevention and regulations for maintaining animal colonies will be covered. Field trips will be required.

ANSC 262 Commercial Poultry Management (3) Prerequisite: ANSC101 and ANSC103. Theory and science of rearing poultry and marketing poultry meat and eggs in the commercial sector. Includes current issues, organization of the industry, as well as fundamental biology of the domestic chicken. Field trips to commercial poultry operations are required.

ANSC 314 Comparative Animal Nutrition (3) Prerequisites: ANSC101, ANSC103, and (CHEM104 or CHEM231). The fundamental role and implications of dietary preference, gastrointestinal physiology and nutrients in animal nutrition. Biochemical roles of nutrients in metabolism, digestion, absorption and assimilation as it relates to various life processes.

ANSC 315 Applied Animal Nutrition (3) Two hours of lecture and two hours of laboratory per week. Prerequisite: ANSC314. Elements of nutrition, source characteristics and adaptability of various feedstuffs to several classes of livestock. A study of the composition of feeds, nutrient requirements and computerized formulation of economic diets and rations for livestock.

ANSC 327 Molecular and Quantitative Animal Genetics (3) Prerequisites: ANSC101, ANSC103, BSCI105, and CHEM131. Classical, molecular, and population genetics with specific emphasis on animal systems will be covered. Also, disseminate information on molecular approaches for manipulating genetics at the whole animal level (transgenic and cloning). Other model organisms will be discussed to provide a conceptual framework.

ANSC 330 Equine Science (3) Prerequisite: ANSC232 or permission of instructor. Recommended: ANSC211 and ANSC212. Credit will be granted for only one of the following: ANSC230 or ANSC330. Formerly ANSC230. Scientific principles of horse behavior, anatomy, physiology, locomotion, nutrition, reproduction, growth, health and disease as applied to horses are emphasized.

ANSC 340 Health Management of Animal Populations (3) Two hours of lecture and two hours of discussion/recitation per week. Prerequisite: ANSC212. Recommended: BSCI223. Credit will be granted for only one of the following: ANSC340 or ANSC412. Formerly ANSC412. A study of common and emerging animal diseases and their prevention and control. The main focus will be on livestock and poultry diseases. However, zoonotic, wildlife, and laboratory animal diseases will also be discussed along with risk assessment, bioterrorism counter-measures, and animal welfare, especially as these topics interface or impact animals used in food production.

ANSC 386 Experiential Learning (3-6) Prerequisite: Permission of department. Junior standing.

ANSC 388 Honors Thesis Research (3-6) Prerequisite: Admission to AGNR Honors Program. Repeatable to 6 credits if content differs. Undergraduate honors thesis research conducted under the direction of an AGNR faculty member in partial fulfillment of the requirements of the College of AGNR Honors Program. The thesis will be defended to a faculty committee.

ANSC 397 Seminar - Careers (1) Prerequisite: Permission of department. Career and professional opportunities. Overview of professional organizations and appropriate private and governmental agencies. Preparation and presentation of animal science topics.

ANSC 398 Seminar - Research (1) Prerequisite: ANSC101 and ANSC103. Repeatable to 2 credits if content differs. Presentation and discussion of current literature and research work in animal science.

ANSC 399 Special Problems in Animal Science (1-2) Prerequisite: ANSC101, ANSC103, and permission of department. Junior standing. Repeatable to 6 credits if content differs. Work assignments are designed to be proportional to the amount of credit. Students are expected to develop an abstract, fact sheet, manuscript, oral presentation, poster, webpage, journal-log, or other scholarly product associated with their study and/or project.

ANSC 420 Critical Thinking in Animal Science (3) Two hours of lecture, one hour of laboratory, and one hour of discussion/recitation per week. Prerequisite: ANSC314 and junior standing. Recommended: AREC250 and AREC306. Employ methods to systematically solve selected problems that typically arise on farms or allied businesses related to animal enterprises.

ANSC 435 Experimental Embryology (3) Two hours of lecture and two hours of laboratory per week. Prerequisite: ANSC212. Recommended: Reproductive Physiology. Credit will be granted for only one of the following: ANSC435 or ANSC489M. Formerly ANSC489M. Experimental approaches to mammalian embryology with emphasis on domestic livestock systems as applied to research and production systems. Lab will include hands-on experiments and demos of in vitro embryo production, embryo splitting, cell injection and nuclear transfer.

ANSC 437 Animal Biotechnology (2) Two hours of lecture and one hour of discussion/recitation per week. Prerequisite: ANSC327 or equivalent. Key concepts and current issues in animal biotechnology are covered. Current techniques and applications systems as well as social, ethical, and regulatory issues associated with biotechnology will be discussed.

ANSC 443 Physiology and Biochemistry of Lactation (3) Prerequisites: ANSC212 and BCHM463 or equivalent. The physiology and biochemistry of milk production in domestic animals, particularly cattle. Mammary gland development and maintenance from the embryo to the fully developed lactating gland. Abnormalities of the mammary gland.

ANSC 444 Domestic Animal Endocrinology (3) Prerequisite: ANSC212 or permission of instructor. Not open to students who have completed ANSC489I or ANSC644. Credit will be granted for only one of the following: ANSC489I, ANSC444, or ANSC644. Formerly ANSC489I. Current developments in endocrinology as it relates to animals used in the production of food and other products important to the well being of humans will be covered.

ANSC 446 Physiology of Mammalian Reproduction (3) Prerequisite: BSCI440 or ANSC212. Anatomy and physiology of reproductive processes in domesticated and wild mammals.

ANSC 447 Physiology of Mammalian Reproduction Laboratory (1) Three hours of laboratory per week. Pre- or corequisite: ANSC446. Gross and micro-anatomy, artificial insemination, estrous cycle synchronization and invitro-fertilization procedures and analytical techniques useful in animal management and reproduction.

ANSC 450 Animal Breeding Plans (3) Prerequisite: BIOM301 or equivalent. Junior standing. Design of animal breeding programs for the genetic improvement of livestock and companion animal species. Principles of population and quantitative genetics. Genetic evaluations of animals, selection strategies and crossbreeding systems. Incorporation of advanced statistics and biotechnology into animal breeding plans.

ANSC 452 Avian Physiology (3) Two two-hour lecture/laboratory/demonstration periods per week. One hour of lecture and two hours of laboratory per week. Prerequisite: ANSC212. 60 semester hours. The digestive, excretory, respiratory, circulatory, immune, skeletal muscle, endocrine and nervous systems of avian species will be examined.

ANSC 453 Animal Welfare and Bioethics (3) Two hours of lecture and two hours of discussion/recitation per week. Prerequisite: ANSC101 and ANSC103; or BSCI106; or permission of instructor. Junior standing. Ethical concerns related to the use of animals in modern society. Historical and philosophical overview of animal welfare and bioethics. Applied ethical discussions on human/animal interrelationships, physical and genetic manipulation, and other current issues associated with the treatment of animals used in food production, research, zoos, and as pets.

ANSC 455 Applied Animal Behavior (3) Two hours of lecture and two hours of laboratory per week. Prerequisites: ANSC101 and ANSC103; or BSCI106. Principles of animal behavior applied to production systems in animal agriculture.

ANSC 489 Current Topics in Animal Science (1-3) Prerequisite: permission of department. Repeatable to 6 credits if content differs. Examination of current developments in the animal sciences.

ANSC 497 Animal Biotechnology Recombinant DNA Laboratory (3) One hour of lecture and five hours of laboratory per week. Prerequisite: ANSC327 or equivalent. Recommended: ANSC435 and ANSC437. An advanced course offering hands-on experience in performing recombinant DNA experiments. Current molecular biology techniques used for cloning genes, analyzing the gene products, and modifying the genes of animals will be performed. Techniques include isolation of DNA, use of restriction enzymes; cloning procedures, PCR analysis, and Southern hybridizations. Lecture material focuses on interpretation of results generated in the laboratory.

ANTH -- Anthropology

ANTH 220 Introduction to Biological Anthropology (4) Three hours of lecture and two hours of laboratory per week. Human biological evolution, including the biology of contemporary human groups, non-human primate social behavior, and the fossil, biochemical, and molecular evidence for human evolution. Includes a laboratory study of human population genetics, biochemical variation, and anatomical diversity in modern and fossil human and non-human primate groups.

ANTH 240 Introduction to Archaeology (3) Exploration of the variety of past human societies and cultures through archaeology, from the emergence of anatomically modern humans to the more recent historical past.

ANTH 260 Introduction to Sociocultural Anthropology and Linguistics (3) Culture and social relationships in a wide variety of settings from small-scale to complex societies. An overview of how anthropology analyzes human behavior. Particular attention to the relationship between language and culture.

ANTH 262 Culture and Environment (3) Prerequisite: ANTH260 or permission of department. Theory and method in cultural ecology and the formulation of a critical perspective on the explanation of the concept of adaptation. Includes the ecological understanding of gender differences and considers conflicting natural resource management strategies and environmental degradation.

ANTH 298 Special Topics in Anthropology (3) Repeatable to 6 credits if content differs. Anthropological perspectives on selected topics of broad general interest.

ANTH 320 Method and Theory in Biological Anthropology (3) Prerequisite: ANTH220 or permission of department. For all Anthropology majors with a focus in biological anthropology or permission of department. Credit will be granted for only one of the following: {ANTH320 and ANTH425} or ANTH625. Theoretical and methodological overview of biological anthropology, including evolutionary anthropology, anthropological genetics, physiological anthropology, human biology, primatology, paleoanthropology, human biodiversity, and contemporary selective challenges to modern humanity. Emphasis on core concepts and their research applications.

ANTH 340 Method and Theory in Archaeology (3) Prerequisite: ANTH240. For all Anthropology majors with a focus in archaeology or permission of department. Theory, method, and practice which guides modern anthropological archaeology. Includes research design and execution (from survey through excavation and interpretation), the reconstruction of aspects of past cultures, and the understanding of cultural change and meaning.

ANTH 358 Undergraduate Teaching Assistant (1-3) Prerequisite: ANTH220, ANTH240, or ANTH260 for ANTH 358A/B/C respectively. Junior standing. For ANTH majors only. Repeatable to 6 credits if content differs. Individual instruction course: contact department or instructor to obtain section and index numbers.

ANTH 360 Method and Theory in Sociocultural Anthropology (3) Prerequisite: ANTH260. For all Anthropology majors with a focus in cultural anthropology or permission of department. Theoretical approaches and research methods in sociocultural anthropology. Emphasis on current debates, new directions, and their historical antecedents.

ANTH 361 Cultures of Native North America (3) Examination of the cultures native to North America, including the land areas of Canada, the United States of America, and the major portion of the Republic of Mexico.

ANTH 363 Native Cultures of Mesoamerica (3) Examination of the various indigenous people of the Western Hemisphere with a focus on the influence and effect of European contact on these cultural systems. Discussion of the cultural and social contrasts and complexities shared by the people in this region on local, regional, and national levels.

ANTH 364 The Anthropology of Religion (3) Prerequisite: ANTH260. Comparative study of religion in social, cultural, political, and economic context. Combines the history of schools of interpretation with a survey of theoretical alternatives and a focus on selected case studies.

ANTH 365 Cultures of Native South America (3) An examination of the South American Native people and their culture, past and present. Discussion of the invasion and political domination of South American Native people by Europeans and the remnant cultures subsequent representation by outsiders.

ANTH 366 Film Images of Native Americans (3) An examination of how indigenous people of the New World have been presented to film audiences of the world. Development of an ethnographic understanding of Native Americans via the use of videos, films, and classroom discussion.

ANTH 368 Regional Ethnography (3) Prerequisite: ANTH260 or permission of department. Repeatable to 6 credits if content differs. Peoples and cultures of a particular region of the world, on the basis of ethnographies, archaeological evidence, and relevant works by social historians and political economists. The regional focus and thematic emphasis will vary by semester.

ANTH 380 Culture and Discourse (3) Prerequisite: ANTH260 or equivalent or permission of department. Recommended: LING200 or equivalent. Contemporary discourse analysis and pragmatics applied to ethnographic research problems with particular attention to roots in recent linguistic anthropological work in ethnographic semantics and ethnography of speaking.

ANTH 386 Experiential Learning (1-6) Prerequisite: permission of department. Recommended: completion of advanced courses in relevant subfield of anthropology. Junior standing. For ANTH majors only.

ANTH 398 Independent Study (1-3) Prerequisite: Permission of department. Repeatable to 6 credits if content differs. Independent interdisciplinary research and reading in specific areas of anthropology.

ANTH 410 Theory and Practice of Health and Community Development (3) Junior standing. Also offered as ANTH610. Credit will be granted for only one of the following: ANTH410 or ANTH610. Introduction to the relationships between culture, health status and practices, and the design of community-based initiatives. The focus is on the use of anthropological knowledge and skills in the analysis of such relationships and in the design of community-based initiatives.

ANTH 422 Human-Plant- (Human & Bioactive Plant) Interaction (3) Prerequisites: ANTH220 and ANTH320 or permission of department. Also offered as ANTH622. Not open to students who have completed ANTH428I or ANTH689I. Credit will be granted for only one of the following: ANTH422 or ANTH622. Formerly ANTH428I. This seminar course will discuss the evolutionary, historical, cultural, and ecological aspects of coevolution, with respect to humans and their interactions with specific bioactive plants. Case studies of human- plant-(pathogen) interactions will be discussed as well as an inclusive survey of anthropologically important phytochemicals. The seminar incorporates human-plant-(pathogen) interactions into models of human evolution and ecology.

ANTH 423 Human Biodiversity (3) Prerequisites: ANTH 220 and ANTH 320 or permission of department. Also offered as ANTH623. Not open to students who have completed ANTH428X or ANTH623. Credit will be granted for only one of the following: ANTH423 or ANTH623. Formerly ANTH428X. This course will discuss modern human origins and contemporary human variability, the nature and levels of human diversity; how natural selection modulates human differences and similarities; early studies of human variation and the concept of human biological race. The course emphasizes the genetic and non-genetic bases of human behavioral variation; the role of gender and human biodiversity; nDNA variation, ethnicity, and disease causation; morphometric and biochemical variation; and the re-conceptualization of human biodiversity.

ANTH 425 Theory and Practice of Applied Biological Anthropology (3) Junior standing. Also offered as ANTH 625. Credit will be granted for only one of the following: {ANTH320 and ANTH425} or ANTH625. An introduction to the major theoretical and methodological underpinnings of applied biological anthropology within such areas as anthropological genetics, applied anthropometry, forensic anthropology, museum studies, and zoological parks. Emphasis is on the evaluation of the contributions of applied bioanthropological studies to particular problems in human health, environments, and heritage.

ANTH 428 Special Topics in Bioanthropology (3) Prerequisite: Permission of department. Repeatable to 6 credits if content differs. Advanced research courses in biological anthropology on changing topics that correspond to new theoretical interests, faculty research interests, or the specialties of visiting scholars. Prerequisites or background knowledge vary with the topic; check with the department for requirements.

ANTH 429 Advanced Special Topics in Biological Anthropology (3) Prerequisite: permission of department. Repeatable to 6 credits if content differs. Upper level biological anthropology courses on varying topics derived from new interests of the faculty or the specialties of visiting scholars.

ANTH 440 Theory and Practice of Historical Archaeology (3) Prerequisite: ANTH240. Also offered as ANTH640. Credit will be granted for only one of the following: ANTH440 or ANTH640. Historical archaeology enhances cultural heritage by providing voice for groups who were often unable to record their own histories, such as women, laborers, working class families, and enslaved people. The course provides insight into issues related to race, gender, and ethnicity as they relate to multicultural histories.

ANTH 442 Public Archeology (3) Prerequisite: ANTH240. Credit will be granted for only one of the following: ANTH442, ANTH448V, or ANTH642. Formerly ANTH448V. Explores the uses and environments for archaeological work through a discussion of museum, electronic media, heritage settings, outdoor history museums, including the legal environment that offers protection for archaeological remains. The course exposes students to the majority of cultural media within which archaeology is currently practiced. The interdisciplinary course is a survey of the progress made within and beyond anthropology in understanding the function of heritage, public memory, tourism, and the other popular uses of materials from the past, including the progress made in linguistics psychology and other cognitive disciplines in understanding the purpose of the past.

ANTH 445 Laboratory Methods in Archaeology (3) Prerequisite: ANTH496. Recommended: ANTH240. The processing, curation, cataloging and analysis of data is an important part of any archaeology field project. Students will learn that basics of laboratory techniques necessary for the final analysis and interpretation of field data.

ANTH 446 Chesapeake Archeology (3) Prerequisite: ANTH240. Credit will be granted for only one of the following: ANTH446, ANTH448W, ANTH646 or ANTH689W. Formerly ANTH448W. An overview of the culture and history of the Chesapeake watershed region, and of the issues that archaeologists face working in this region.

ANTH 447 Material Culture Studies in Archaeology (3) Prerequisite: ANTH240. Credit will be granted for only one of the following: ANTH447, ANTH448C, ANTH647, or ANTH689C. Formerly ANTH448C. An in-depth introduction to the world of material culture studies with a focus on the methods and theories in historical archaeology. Students will look at archaeological data as historical documents, commodities and as symbols expressing ideas.

ANTH 448 Special Topics in Archaeology (3) Prerequisite: ANTH240. Repeatable to 6 credits if content differs. Advanced topics in archaeological research, corresponding to new theoretical developments, faculty research interests, or specialties of visiting scholars. Prerequisites may vary with course topic; check with the department for requirements.

ANTH 449 Advanced Special Topics in Archaeology (3) Prerequisite: permission of department. Repeatable to 6 credits if content differs. Upper level archaeology courses on varying topics derived from new interests of the faculty or the specialties of visiting scholars.

ANTH 450 Theory and Practice of Environmental Anthropology (3) Junior standing. Also offered as ANTH650. Credit will be granted for only one of the following: ANTH450 or ANTH650. An overview of contemporary application of cultural theory and methods to environmental problems. Topics include the use of theories of culture, cognitive approaches, discourse analysis, and political ecology. Case studies from anthropology, other social sciences, humanities, conservation, and environmental history are used to demonstrate the applied value of a cultural-environmental approach.

ANTH 454 Anthropology of Travel and Tourism (3) Also offered as ANTH654. Credit will be granted for only one of the following: ANTH454 or ANTH654. Review of recent anthropological contributions to the study of travel and tourism development. Topics include the history of travel, political economy of tourism, gender in tourism, the built environment, ecotourism, and heritage tourism.

ANTH 464 Culture and Sustainable Development (3) Prerequisite: ANTH262 or equivalent. Explores anthropological approaches to economic development, particularly the new sub-field of sustainable development. Examines the local-level social, political and economic consequences of development and the potential for grass roots strategies to manage resources.

ANTH 468 Special Topics in Cultural Anthropology (3) Prerequisite: ANTH360 or permission of department. Repeatable to 6 credits if content differs. Advanced courses in varying specialty areas of cultural anthropology that respond to new theoretical developments, faculty research interests, or specialties of visiting scholars.

ANTH 469 Advanced Special Topics in Cultural Anthropology (3) Prerequisite: permission of department. Repeatable to 6 credits if content differs. Upper level cultural anthropology courses on varying topics derived from new interests of the faculty or the specialties of visiting scholars.

ANTH 470 History and Philosophy of Anthropological Inquiry (3) Prerequisite: ANTH220 or ANTH240 or ANTH260. Recommended: ANTH320 or ANTH340 or ANTH360 or ANTH380. Important philosophical and historical aspects of anthropological theorizing. Attention will be given on the Ontological and Epistemological (the latter including Methodological) assumptions of the major camps and paradigms in anthropology over the past one hundred or so years, especially the last three decades. A focus on developments in cultural anthropology, while addressing the other subfields of anthropology.

ANTH 472 Medical Anthropology (3) Prerequisite: ANTH360 or permission of department. Credit will be granted for only one of the following: ANTH472, ANTH468, ANTH672,or ANTH688L. Formerly ANTH468L. An exploration of the cultural, social, economic and political dimensions of health, disease, and illness. These dimensions will be examined through both the health-seeker's and the care-provider's perspectives.

ANTH 476 Senior Research (3-4) For ANTH majors only. Credit will be granted for only one of the following: ANTH476 or ANTH486. Capstone course in which students pursue independent research into a current problem in anthropology, selected with assistance of a committee of faculty. Research leads to the writing of a senior thesis in anthropology.

ANTH 477 Senior Thesis (3-4) Prerequisite: ANTH476; permission of department. For ANTH majors only. Credit will be granted for only one of the following: ANTH477 or ANTH487. Capstone course in which students write a senior thesis on independent research into a current problem in anthropology. The thesis is defined before a committee of faculty.

ANTH 478 Special Topics in Linguistics (3) Prerequisite: ANTH380 or permission of department. Recommended: LING200 or equivalent. Repeatable to 6 credits if content differs. Advanced courses in specialty areas that respond to new theoretical developments and faculty research interests in linguistics.

ANTH 486 Honors Research (3-4) Prerequisites: permission of department; admission to University Honors Program or Anthropology Honors Program. For ANTH majors only. Credit will be granted for only one of the following: ANTH486 or ANTH476. Capstone course in which students pursue independent research into a current problem in anthropology, selected with assistance of a committee of faculty. Research leads to the writing of an honors thesis in anthropology.

ANTH 487 Honors Thesis (3-4) Prerequisites: ANTH486; permission of department; admission to University Honors Program or Anthropology Honors Program. For ANTH majors only. Credit will be granted for only one of the following: ANTH487 or ANTH477. Capstone course in which students write a thesis on the results of independent research into a current problem in anthropology.

ANTH 493 Anthropological Fieldwork and Experience in Argentina: The Relevance of Context and Place (3) Credit will be granted for only one of the following: ANTH493, ANTH468Q, ANTH688Q, ANTH693, CPSP379, or HONR348E. A three week intensive course in Argentina that examines anthropological fieldwork and experiences to understand the relevance of context and place in the identification and implementation of projects on health, development, and heritage. Students will learn to contextualize the production and dissemination of knowledge within political-economic, historical, socio-cultural and policy realms. Participant-observation of the local culture and exposure to the regional varieties of anthropological practice will also be carried out through comparison of projects in the U.S. and Argentina, visits to selected sites of anthropological production, and homestays with families.

ANTH 496 Field Methods in Archaeology (6) Field training in the techniques of archaeological survey and excavation.

ANTH 498 Advanced Field Training in Ethnography (1-8) Prerequisite: Permission of department. Repeatable to 6 credits if content differs. Credit will be granted for only one of the following: ANTH498 or ANTH698. Experience in field research utilizing a variety of ethnographic methods of inquiry.

ANTH 499 Fieldwork in Biological Anthropology (3-8) Prerequisite: permission of department. Repeatable to 8 credits if content differs. Field training in techniques of human biology, primatology, or paleoanthropology.

AOSC -- Atmospheric and Oceanic Science

AOSC 123 Causes and Implications of Global Change (3) Also offered as GEOG123, and GEOL123. Credit will be granted for only one of the following: AOSC123, GEOG123, GEOL123, or METO123. Formerly METO123. This course offers a unique experience in integrating physical, chemical, geological and biological sciences with geographical, economic, sociological and political knowledge skills toward a better understanding of global change. Review of environmental science relating to weather and climate change, acid precipitation, ozone holes, global warming and impacts on biology, agriculture and human behavior. Study of the natural, long-term variability of the global environment, and what influence mankind may have in perturbing it from its natural evolution. Concepts of how physical, biological and human behavioral systems interact, and the repercussions which may follow from human endeavors. The manner in which to approach decision and policy making related to issues of global change.

AOSC 200 Weather and Climate (3) Three hours of lecture and one hour of discussion/recitation per week. CORE Physical Science Lab (PL) course only when taken concurrently with AOSC201. Prerequisites: MATH110 or MATH115. Recommended as a corequisite: AOSC201/METO201. Formerly METO200. Broad survey of the state of knowledge and problems of atmospheric science. Origin and structure of the atmosphere, meteorological observations, weather maps, forecasting, satellites, energetics, wind, general circulation, storms, severe weather, climate change, air pollution.

AOSC 201 Weather and Climate Laboratory (1) Two hours of laboratory per week. CORE Physical Science Lab (PL) course only when taken concurrently with AOSC200. Corequisite: AOSC200/METO200. Formerly METO201. Laboratory exercises to supplement AOSC200, including weather observations, weather map analysis, use of the Internet, forecasting practice and climate modeling.

AOSC 346 Cycles in the Earth System (3) Prerequisite: MATH140, AOSC/GEOG/GEOL123, or permission of department. Recommended: MATH141, PHYS141, PHYS171, or PHYS161. Also offered as GEOG346, GEOL346. The Earth System operates through some fundamental cycles such as water, energy, and the carbon cycles. This course will build on GEOL/GEOG/AOSC123 starting with concept of feedbacks within the Earth System, global energy balance and the Greenhouse Effect. A brief introduction to the atmospheric and oceanic circulation will lead to the water cycle connecting the land, ocean, and atmosphere to the Earth System. Introduction to the Global carbon, nitrogen, and sulfur cycles will be followed by the concept of long-term climate regulation and short-term climate variability. The concepts of cycles, feedbacks, forcings, and responses in the Earth System will be applied to Global Warming and Ozone Depletion.

AOSC 386 Experiential Learning (3-6) Prerequisite: Learning Proposal approved by the Office of Experiential Learning Programs, faculty sponsor and student's internship sponsor. Junior standing. Formerly METO386.

AOSC 400 The Atmosphere (3) Prerequisites: MATH141, PHYS161, PHYS171 or permission of department. Formerly METO400. The atmosphere and its weather and climate systems. Composition of the atmosphere, energy sources and sinks, winds, storms and global circulation. The application of basic classical physics, chemistry and mathematics to the study of the atmosphere.

AOSC 401 Global Environment (3) Prerequisite: AOSC400/METO400. Formerly METO401. The global weather and climate system; the natural variability of the atmosphere-ocean-biosphere. Potential human effects: greenhouse effects, deforestation, acid rain, ozone depletion, nuclear winter. Social, political and economic effects of changes in global environment. Policy options.

AOSC 431 Atmospheric Physics and Thermodynamics (3) Prerequisites: MATH240 or MATH461; PHYS270 and PHYS271 (Formerly: PHYS263); CHEM131 and CHEM132 (Formerly: CHEM103). Recommended: MATH246. Credit will be granted for only one of the following: AOSC431 or METO431. Formerly METO431. The general character of the atmosphere and its weather and climate systems, phenomena and distributions of variables (winds, temperature, pressure and moisture). The formal framework of the science; the application of basic classical physics, chemistry, mathematics and computational sciences to the atmosphere.

AOSC 432 Large Scale Atmospheric Dynamics (3) Prerequisite: AOSC431/METO431. Corequisite: MATH246. 3 semester hours. Credit will be granted for only one of the following: AOSC432 or METO432. Formerly METO432. The physics of the atmospheric motions that control mid-latitude weather; physics of hurricanes; mathematics of climate change.

AOSC 434 Air Pollution (3) Prerequisites: {CHEM113 and MATH241} or permission of department. Formerly METO434. Production, transformation, transport and removal of air pollutants. The problems of photochemical smog, the greenhouse effect, stratospheric ozone, acid rain and visibility. Analytical techniques for gases and particles.

AOSC 499 Special Problems in Atmospheric Science (1-3) Prerequisite: permission of department. Repeatable to 6 credits. Formerly METO499. Research or special study in the field of meteorology and the atmospheric and oceanic sciences.

ARAB -- Arabic

ARAB 101 Elementary Arabic I (3) Introduction to modern standard Arabic in both its spoken and written form. Equal emphasis on all four skill areas: speaking, listening, reading, and writing.

ARAB 102 Elementary Arabic II (3) Prerequisite: ARAB101 or equivalent. Continuation of ARAB101.

ARAB 104 Elementary Modern Standard Arabic I-II (6) Not open to fluent/native speakers of Arabic. An intensive course focusing on developing functional proficiency in the standard Arabic language, both written and formal spoken. Begins with script and phonology, and develops into a limited range of situation-based texts and topics that build vocabulary, grammar, general communicative competence and cultural awareness.

ARAB 105 Elementary Modern Standard Arabic III-IV (6) Not open to fluent/native speakers of Arabic. Prerequisite: ARAB104. Continuation of ARAB104, developing further linguistic proficiency in Standard Arabic, both written and formal spoken. Covers an extended range of situation-based texts and topics that build vocabulary, grammar, general communicative competence and cultural awareness.

ARAB 106 Elementary Egyptian Colloquial Arabic I (3) Not open to fluent/native speakers of Arabic. Basic knowledge of Arabic script required. Can be taken concurrently with an MSA course. Introduction to the widely spread spoken variety of Egyptian Arabic, covering the basic range of communicative and cultural situations where Modern Standard Arabic is not used. Emphasis is on developing the learners' listening and speaking skills in Egyptian Arabic, since colloquial Arabic dialects are mainly used in speech.

ARAB 107 Elementary Egyptian Colloquial Arabic II (3) Not open to fluent/native speakers of Arabic. Prerequisite: ARAB106. Continuation of ARAB106, covering a wider range of basic vocabulary, grammar forms, communicative and cultural situations using the widely spread spoken variety of Egyptian Arabic. Emphasis on developing learners' listening and speaking skills in Egyptian Arabic, since colloquial dialects in the Arab world are mainly used in speech.

ARAB 110 Elementary Levantine Colloquial Arabic I (3) Not open to fluent/native speakers of Arabic. Basic knowledge of Arabic script required. Can be taken concurrently with a MSA course. Introduction to Levantine Arabic, the variety of Arabic spoken in Lebanon, covering the basic range of communicative and cultural situations where Modern Arabic is not used. Emphasis on developing the learners' listening and speaking skills in Levantine Arabic.

ARAB 111 Elementary Levantine Colloquial Arabic II (3) Not open to fluent/native speakers of Arabic. Prerequisite: ARAB110. Continuation of ARAB110, covering a wider range of basic vocabulary, grammar forms, communicative and cultural situations using the widely spread spoken variety of Levantine Arabic. Emphasis on developing learners' listening and speaking skills in Levantine Arabic. Will engage students in pedagogical tasks, emulate real life tasks such as information gap and negotiation.

ARAB 201 Intermediate Arabic I (3) Prerequisite: ARAB102 or equivalent. Intermediate modern standard Arabic I in both its spoken and written forms. Course will continue to develop all four skills of language acquisition: listening, speaking, reading, and writing.

ARAB 202 Intermediate Arabic II (3) Prerequisite: ARAB201 or equivalent. Continuation of ARAB201.

ARAB 204 Intermediate Modern Standard Arabic I (6) Prerequisite: ARAB105. Covers topics related to contemporary Arabic society, literature and culture in standard written and formal spoken Arabic. Acquisition of more complex grammatical structures, expanding vocabulary, and reading, to develop a better understanding of the formal aspects of using MSA.

ARAB 205 Intermediate Modern Standard Arabic II (6) Prerequisite: ARAB204. Continuation of ARAB204, with exposure to a wide range of Arabic texts from different domains. Focus on vocabulary, more complex grammatical forms, and a better understanding of the formal aspects of using MSA as well as the cultural aspects of using the language.

ARAB 206 Elementary Egyptian Colloquial Arabic III (3) Prerequisite: ARAB107 or permission of department. Develops listening and speaking skills in Egyptian Arabic. Covers family, school, shopping, and social interaction. Some reading in Arabic.

ARAB 207 Elementary Egyptian Colloquial Arabic IV (3) Prerequisite: ARAB206 or equivalent. Further develops listening and speaking skills in Egyptian Colloquial Arabic, extending range of contexts where it merges with Modern Standard Arabic. Some reading in Arabic.

ARAB 210 Elementary Levantine Arabic III (3) Prerequisite: permission of department. Emphasis on developing listening and speaking skills in Levantine Arabic, since colloquial dialects are mainly used in speech. Covers family, school, shopping, local culture and general interaction. Some reading in Arabic.

ARAB 211 Elementary Levantine Arabic IV (3) Prerequisite: ARAB210 or permission of department. Emphasis on developing listening and speaking skills in Levantine Arabic. Covers conversational needs in everyday situations such as introductions, at hotels, at the doctor's office, at social get-togethers, etc. Some reading in Arabic.

ARAB 221 The Arab World Today through Readings in Translation (3) An introduction to the contemporary Arabic world through literature. Includes discussions of historical background, political thought and society. In English.

ARAB 282 The Arab-Israeli Conflict through Readings in Translation (3) Literary works by both Arab and Jewish authors depicting the impact of the conflict on society and individuals. In English.

ARAB 304 Advanced Modern Standard Arabic I (3) Prerequisite: ARAB205 or permission of department. Not open to students who have completed ARAB301. Formerly ARAB301. Advanced grammar, reading, writing, speaking in Arabic; study of contemporary Arabic society, politics, and culture.

ARAB 305 Advanced Modern Standard Arabic II (3) Prerequisite: ARAB304 or equivalent. Further advanced grammar, reading, writing, speaking in Arabic; study of current issues within the Arab World.

ARAB 306 Intermediate Egyptian Colloquial Arabic I (3) Prerequisite: ARAB207. Covering the spoken variety of Egypt in an extended range of communicative contexts where Egyptian Colloquial and Modern Standard Arabic merge. By course end, the students speak in Egyptian Arabic in situations and topics that require reasonable knowledge of the culture.

ARAB 307 Intermediate Egyptian Colloquial Arabic II (3) Prerequisite: ARAB306. Continuation of ARAB306, focusing on enhancing learners' speaking and listening skills in Egyptian Arabic, enriching their vocabulary, introducing them to more complex grammatical forms and structures, and providing practice in a broad range of communicative and cultural contexts.

ARAB 310 Intermediate Levantine Arabic I (3) Prerequisite: ARAB211 or permission of department. Focuses on speaking and listening skills in Levantine Arabic, enriching vocabulary, introducing more complex grammatical forms and structures. Range of communicative contexts. Some reading in Arabic.

ARAB 313 Arabic for Islamic Culture (3) Open to native speakers of Arabic. Prerequisite: permission of department. Examines core topics related to Islamic culture and society, e.g. the political system, caliphates, reform movements, Sharia's law, human rights, role of women, and Jihad. In Arabic.

ARAB 314 Arabic for Islamic Culture II (3) Prerequisite: ARAB313 or equivalent. Examines core topics related to Islamic culture and society. In Arabic.

ARAB 330 Listening Strategies in Arabic I (3) Prerequisite: permission of department. Training in recognizing specific features of varieties of spoken Arabic in different contexts. Some reading in Arabic.

ARAB 331 Listening Strategies in Arabic II (3) Prerequisite: ARAB330 or equivalent. Further training in recognizing specific features of varieties of spoken Arabic in range of contexts. Some reading in Arabic.

ARAB 332 Listening Strategies in Arabic III (3) Prerequisite: ARAB331 or equivalent. Advanced training in recognizing specific features of varieties of spoken Arabic. Increased range of registers. Some reading in Arabic.

ARCH -- Architecture

ARCH 101 Foundations in Architecture (1) One hour of lecture and one hour of discussion/recitation per week. Prerequisite: UNIV100 or permission of department. Restricted to students with less than 60 credits. Freshman standing. To pursue any field of knowledge one must first begin with the basics. By learning the "language" of architecture one can explore the foundations of the architectural profession through interactive and experiential learning.

ARCH 150 Discovering Architecture: A Career Studio (3) Five hours of lecture, 25 hours of laboratory, and five hours of discussion/recitation per week. Prerequisite: permission of department. Introduction to careers in architecture. A Young Scholars Program course, offered during the summer only.

ARCH 170 Introduction to the Built Environment (3) Introduction of conceptual, perceptual, behavioral, and technical aspects of the built environment, and methods of analysis, problem- solving, and implementation.

ARCH 220 History of Architecture I (3) Survey of world architectural history to 1400.

ARCH 221 History of Architecture II (3) Prerequisite: ARCH220 or permission of department. Survey of world architectural history from 1400 to the present.

ARCH 223 History of Non-Western Architecture (3) Survey of non-western architectural history, including prehistoric and vernacular; ancient civilizations and the Indus valley; the Islamic world; Hindu and Buddhist traditions of Asia; and pre-European Africa and the Americas.

ARCH 224 The Ancient Roman City: Pompeii and Beyond (3) Not open to students who have completed HONR208S. Credit will be granted for only one of the following: ARCH224 or HONR208S. Study of daily life in the ancient Roman world seen through the architecture of Pompeii and neighboring cities.

ARCH 225 History of World Architecture I (3) Sophomore standing. Survey of architectural history from prehistory through the year 1000 CE.

ARCH 226 History of World Architecture II (3) Sophomore standing. Survey of architectural history from 1000 to 1800.

ARCH 227 History of World Architecture III (3) Sophomore standing. Survey of architectural history from 1800 to present.

ARCH 242 Basic Architectural Drawing (3) Two hours of lecture and two hours of laboratory per week. Prerequisite: ARCH170 or permission of department. Freshman standing. The study of drawing as a learned skill with emphasis on observation, documentation, analysis, and synthesis. This introductory course immerses students in the conventions of architectural drawing (orthographics, isometrics, axonometrics, and linear perspective) primarily through freehand drawing.

ARCH 343 Intermediate Architectural Drawing (3) Studio, four hours per week. Six hours of laboratory per week. Prerequisite: ARCH242 or permission of department. For ARCH majors only. Development of media technique (including color pencil, pastel, graphite, ink, and watercolor) as vehicles for investigating color, composition, and abstraction. Exploration of historical and contemporary issues of representation in architectural visual communication.

ARCH 386 Experiential Learning (3-6) Prerequisite: Learning Proposal approved by faculty sponsor, and student's internship sponsor. Junior standing.

ARCH 400 Architecture Studio I (6) Three hours of lecture and nine hours of studio per week. Prerequisite: ARCH majors only. Introduction to architectural design with particular emphasis on conventions and principles of architecture, visual and verbal communication skills, formal analysis, design process, spatial composition, architectural promenade, basic program distribution, and elementary constructional and environmental responses.

ARCH 401 Architecture Studio II (6) Three hours of lecture and nine hours of studio per week. Prerequisite: ARCH400 with a grade of C or better. For ARCH majors only. Continuation of ARCH 400 with introduction to building typology, urban and contextual issues, design of the vertical surface, and architectural interiors.

ARCH 402 Architecture Studio III (6) Three hours of lecture and nine hours of studio per week. Prerequisite: ARCH401 with a grade of C or better. For ARCH majors only. Architectural design studio with emphasis on building and facade typologies, the development of architectural promenade and sequence, public and/or civic infill buildings dependent upon the architectural promenade, and urban housing types of varying densities. The architect's obligations to urban context are explored in many dimensions including historical, typological, and physical.

ARCH 403 Architecture Studio IV (6) Three hours of lecture and nine hours of studio per week. Prerequisite: ARCH402 with a grade of C or better. For ARCH majors only. Investigations into the relationship between the man-made and the natural world including introductory issues of assembly and material value. Design of the site and the building are combined into an integral process delimiting and probing the boundaries of each and exploring their reciprocal relationship. The architect's obligations to the natural and urban contexts are explored in many dimensions including historical, typological, environmental, and physical.

ARCH 404 Graduate Architecture Design Studio I (6) Restricted to Master of Architecture majors only. Recommended: For 3 1/2 year graduate students only. Introduction to architectural design with particular emphasis on conventions and principles of architecture , visual and verbal communication skills, formal analysi, design process, spatial composition, architectural promenade, basic program distribution, and elementary constructional and environmental responses. Offered fall only.

ARCH 405 Graduate Architecture Design Studio II (6) Prerequisite: ARCH404 with a grade of C (2.0) or better. For Master of Architecture majors only. Architectural design studio with emphasis on building and facade typologies, the development of architectural promenade and sequence, public and/or civic infill buildings dependent upon the architectural promenade, and urban housing types of varying densities. The architect's obligations to urban context are explored in many dimensions including historical, typological, and physical. Offered spring only.

ARCH 406 Graduate Architecture Design Studio III (6) Prerequisite: ARCH405 with a grade of C (2.0) or better. For Master of Architecture majors only. Investigations into the relationship between the man-made and the natural world including introductory issues of assembly and material value. Design of the site and the building are combined into an integral process delimiting and probing the boundaries of each and exploring their reciprocal relationship. The architect's obligations to the natural and urban contexts are explored in many dimensions including historical, typological, environmental, and physical.

ARCH 407 Graduate Architecture Design IV (6) Prerequisite: ARCH406 with a grade of C (2.0) or better. For Master of Architecture majors only. Studio problems and theories concentrating on urbanism and urban design techniques. Issues and sites range from high-density urban in-fill to suburban and greenfield developmment in American and other contexts. Studio theories explore such topics as Contextualism, Neo-Traditional design, Transit Oriented Development, density, sustainable development, building typology, and street design.

ARCH 408 Intermediate Architectural Drawing (1-6) Prerequisite: ARCH403 or equivalent and permission of department. Repeatable to 6 credits if content differs. Topical problems in architecture and urban design.

ARCH 410 Architecture Technology I (4) Prerequisites: MATH140 or MATH220; PHYS121 and (one of the following:BSCI205, GEOG140, GEOL120, GEOL123/AOSC123/METO123/GEOG123). Corequisite: ARCH400. For ARCH majors only. First course in a four course sequence which develops the knowledge and skills of architectural technology. Addresses climate, human responses to climate, available materials, topography and impact on culture. Principles of assembly, basic structural principles and philosophies of construction.

ARCH 411 Technology II (4) Prerequisite: ARCH410. Corequisite: ARCH401. For ARCH majors only. Second course in a four course sequence. Building construction processes and terminology; use and performance characteristics of primary building materials; principles of structural behavior related to the building systems; equilibrium and stability, stiffness and strength, types of stress, distribution of force and stress, resolution of forces, reactions, bending moments, shear, deflection, buckling.

ARCH 412 Architecture Technology III (4) Prerequisite: ARCH411 with a grade of C or better. Corequisite: ARCH402. For ARCH majors only. Third course in a four course sequence. Design of steel, timber, and reinforced concrete elements and subsystems; analysis of architectural building systems. Introduction to design for both natural and man-made hazards.

ARCH 413 Architecture Technology IV (4) Prerequisite: ARCH412. Corequisite: ARCH403. For ARCH majors only. Final course in a four course sequence. Theory, quantification, and architectural design applications for HVAC, water systems, fire protection electrical systems, illumination, signal equipment, and transportation systems.

ARCH 418 Selected Topics in Architectural Technology (1-3) Prerequisite: permission of department. Repeatable to 6 credits if content differs.

ARCH 419 Independent Studies in Architectural Technology (1-4) Repeatable to 6 credits. Proposed work must have a faculty sponsor and receive approval of the curriculum committee.

ARCH 420 History of American Architecture (3) Prerequisite: ARCH221 or permission of department. American architecture from the late 17th to the 21st century.

ARCH 422 History of Greek Architecture (3) Prerequisite: ARCH221 or permission of department. Survey of Greek architecture from 750-100 B.C.

ARCH 423 History of Roman Architecture (3) Prerequisite: ARCH221 or permission of department. Survey of Roman architecture from 500 B.C. To A.D. 325.

ARCH 426 Fundamentals of Architecture (3) Prerequisite: admission to 3 1/2 year M. ARCH program. For ARCH majors only. Thematic introduction of a variety of skills, issues, and ways of thinking that bear directly on the design and understanding of the built world.

ARCH 427 Theories of Architecture (3) Prerequisite: ARCH426 or permission of department. For ARCH majors only. Selected historical and modern theories of architectural design.

ARCH 428 Selected Topics in Architectural History (1-3) Prerequisite: permission of department. Repeatable to 6 credits if content differs. Special topics in the history of architecture.

ARCH 429 Independent Studies in Architectural History (1-4) Repeatable to 6 credits. Proposed work must have faculty sponsor and receive approval of the Curriculum Committee.

ARCH 433 History of Renaissance Architecture (3) Prerequisite: ARCH221 or permission of department. Renaissance architectural principles and trends in the 15th and 16th centuries and their modifications in the Baroque period.

ARCH 434 History of Modern Architecture (3) Prerequisite: ARCH221 or permission of department. Architectural trends and principles from 1750 to the present, with emphasis on developments since the mid-19th century.

ARCH 435 History of Contemporary Architecture (3) Prerequisite: ARCH221 or permission of department. Architectural history from World War II to the present.

ARCH 437 History of Pre-Columbian Architecture (3) Prerequisite: ARCH221 or permission of department. History of architecture of the western hemisphere from the Pre-Classic period through the Spanish conquest.

ARCH 442 Studies in the Vertical Surface (3) Prerequisite: ARCH401 or permission of department. Theories of analysis and design related to vertical surface. Exercises include documentation, analysis, and design of facades.

ARCH 443 Visual Communication For Architects (3) Two hours of lecture and two hours of laboratory per week. Prerequisite: Admission to the 3 1/2 year M. ARCH program. Corequisite: ARCH400. For ARCH majors only. Investigation of the relationship between drawing from life and architectural drawing, the conventions of architectural drawing and the role of architectural drawing as a means to develop, communicate, and generate architectural ideas.

ARCH 445 Visual Analysis of Architecture (3) Two hours of lecture and two hours of studio per week. Prerequisite: ARCH400 or permission of department. For ARCH majors only. Study of visual principles of architectural and urban precedents through graphic analysis. Exercises include on-site observation, documentation and analysis. Focuses on the development of an architect's sketchbook as a tool for life-long learning.

ARCH 448 Selected Topics in Visual Studies for Architects (1-3) Prerequisite: permission of department. Repeatable to 6 credits if content differs.

ARCH 449 Independent Studies in Visual Studies for Architects (1-4) Repeatable to 6 credits. Proposed work must have a faculty sponsor and receive approval of the Curriculum Committee.

ARCH 456 Great Cities (3) Prerequisite: permission of department. Case studies from a selection of the great cities of the world.

ARCH 458 Selected Topics in Urban Planning (1-4) Prerequisite: permission of department. Repeatable to 6 credits if content differs. Proposed work must have a faculty sponsor and receive approval of the Curriculum Committee.

ARCH 459 Independent Studies in Urban Planning (1-4) Repeatable to 6 credits. Proposed work must have a faculty sponsor and receive approval of the curriculum committee.

ARCH 460 Site Analysis and Design (3) Prerequisite: ARCH400 or permission of department. For ARCH majors only. Principles and methods of site analysis; the influence of natural and man-made site factors on site design and architectural form.

ARCH 461 Sustainability in Architecture (3) Prerequisite: ARCH401 and ARCH410 or permission of department. Credit will be granted for only one of the following: ARCH418S or ARCH461. Formerly ARCH418S. Strategies of sustainability as related to the broader context of architectural problem solving.

ARCH 470 Computer Applications in Architecture (3) Prerequisite: ARCH400 or permission of department. For ARCH majors only. Introduction to computer utilization, with emphasis on architectural applications.

ARCH 478 Selected Topics in Architecture (1-4) Prerequisite: permission of department. Repeatable to 6 credits if content differs.

ARCH 479 Independent Studies in Architecture (1-4) Repeatable to 6 credits. Proposed work must have a faculty sponsor and receive approval of the Curriculum Committee.

ARCH 481 The Architect in Archaeology (3) Prerequisite: permission of department. The role of the architect in field archaeology and the analysis of excavating, recording, and publishing selected archaeological expeditions.

ARCH 482 The Archaeology of Roman and Byzantine Palestine (3) Archaeological sites in Palestine (Israel and Jordan) from the reign of Herod the Great to the Moslem conquest.

ARCH 483 Field Archaeology (3) Prerequisite: permission of department. Participation in field archaeology with an excavation officially recognized by proper authorities of local government.

ARCH 488 Selected Topics in Architectural Preservation (1-3) Prerequisite: permission of department. Repeatable to 6 credits if content differs.

ARCH 489 Independent Studies in Architectural Preservation (1-4) Repeatable to 6 credits. Proposed work must have a faculty sponsor and receive approval of the Curriculum Committee.

AREC -- Agricultural and Resource Economics

AREC 240 Introduction to Economics and the Environment (4) Costs and social impacts of pollution and human crowding in the modern environment. The economic, legal and institutional causes of these problems. Public policy approaches to solutions and the costs and benefits of alternative solutions.

AREC 250 Elements of Agricultural and Resource Economics (3) An introduction to economic principles of production, marketing, agricultural prices and incomes, farm labor, credit, agricultural policies, and government programs.

AREC 306 Farm Management (3) The organization and operation of the farm business to obtain an income consistent with family resources and objectives. Principles of production economics and other related fields as applied to the individual farm business.

AREC 332 Introduction to Natural Resource Policy (3) Prerequisite: AREC240. Credit will be granted for only one of the following: AREC432 or AREC332. Formerly AREC432. Development of natural resource policy and analysis of the evolution of public intervention in the use of natural resources. Examination of present policies and of conflicts between private individuals, public interest groups, and government agencies.

AREC 365 World Hunger, Population, and Food Supplies (3) An introduction to the problem of world hunger and possible solutions to it. World demand, supply, and distribution of food. Alternatives for leveling off world food demand, increasing the supply of food, and improving its distribution. Environmental limitations to increasing world food production.

AREC 382 Computer-Based Analysis in Agricultural and Resource Economics (3) One hour of lecture and three hours of laboratory per week. Prerequisites: MATH111/STAT100 or equivalent; and ECON200/AREC240/AREC250 or equivalent. Credit will be granted for only one of the following: AREC182 or AREC382. Formerly AREC182. Analysis of economic data using computer spreadsheets. Exercises include analyses of forest land shares, farmer willingness to pay, farm production planning, fisheries management, corn prices, and index numbers. Analyses features use of cell formulas, spreadsheet functions, Excel's Data Analysis Tool and Solver. This is a lab course featuring experimental learning.

AREC 386 Experiential Learning (3-6) Prerequisite: permission of department. Junior standing.

AREC 388 Honors Thesis Research (3-6) Prerequisite: admission to AGNR Honors Program. Repeatable to 6 credits if content differs. Undergraduate honors thesis research conducted under the direction of an AGNR faculty member in partial fulfillment of the requirements of the College of AGNR Honors Program. The thesis will be defended to a faculty committee.

AREC 399 Special Problems (1-3) Repeatable to 6 credits if content differs. Concentrated reading and study in some phase of a problem in agricultural and/or natural resource economics.

AREC 404 Applied Price Analysis (3) Restricted to Agricultural & Resource Economics majors (0111C &0111O), Environmental Science and Policy Environmental Economics concentration majors (2299D), and those minoring in Agribusiness Economics (#AG01), Environmental Economics and Policy (#AG02), or Resource and Agricultural Policy in Economic Development (#AG03) Other students will be taken off the hold file on the first day of class as space allows. Prerequisite: ECON306, ECON326 or equivalent. An introduction to the economic analysis of price behavior, with applications to agricultural commodities. The use of price information in the decision-making process, the relation and supply and demand in determining price, and the relation of prices to grade, time, location, and stages of processing in the marketing system.

AREC 405 Economics of Production (3) Restricted to Agricultural & Resource Economics majors (0111C &0111O), Environmental Science and Policy Environmental Economics concentration majors (2299D), and those minoring in Agribusiness Economics (#AG01), Environmental Economics and Policy (#AG02), or Resource and Agricultural Policy in Economic Development (#AG03) Other students will be taken off the hold file on the first day of class as space allows. Prerequisite: ECON306, ECON326 or equivalent. The use and application of production economics in analysis of firm and policy decisions. Production functions, cost functions, multiple product and joint production, and production processes through time.

AREC 425 Economics of Food Sector (3) Corequisite: ECON306, ECON326, or equivalent. Credit will be granted for only one of the following: AREC425 or AREC489B. Formerly AREC489B. Economic analysis of food sector issues, including food safety, agricultural biotechnology, and coordination mechanisms in the food supply chain.

AREC 427 Economics of Commodity Marketing Systems (3) Restricted to Agricultural & Resource Economics majors (0111C &0111O), Environmental Science and Policy Environmental Economics concentration majors (2299D), and those minoring in Agribusiness Economics (#AG01), Environmental Economics and Policy (#AG02), or Resource and Agricultural Policy in Economic Development (#AG03) Other students will be taken off the hold file on the first day of class as space allows. Prerequisite: ECON306, ECON326 or equivalent. Basic economic theory as applied to the marketing of agricultural commodities. Current developments affecting market structure including contractual arrangements, cooperative marketing, vertical integration, and governmental policies.

AREC 433 Food and Agricultural Policy (3) Restricted to Agricultural & Resource Economics majors (0111C &0111O), Environmental Science and Policy Environmental Economics concentration majors (2299D), and those minoring in Agribusiness Economics (#AG01), Environmental Economics and Policy (#AG02), or Resource and Agricultural Policy in Economic Development (#AG03) Other students will be taken off the hold file on the first day of class as space allows. Prerequisite: ECON306, ECON326 or equivalent. Economic and political context of governmental involvement in the farm and food sector. Historical programs and current policy issues. Analysis of economic effects of agricultural programs, their benefits and costs, and comparison of policy alternatives. Analyzes the interrelationship among international development, agricultural trade and general economic and domestic agricultural policies.

AREC 435 Commodity Futures and Options (3) Two hours of lecture and two hours of laboratory per week. Restricted to Agricultural & Resource Economics majors (0111C &0111O), Environmental Science and Policy Environmental Economics concentration majors (2299D), and those minoring in Agribusiness Economics (#AG01), Environmental Economics and Policy (#AG02), or Resource and Agricultural Policy in Economic Development (#AG03) Other students will be taken off the hold file on the first day of class as space allows. Prerequisite: ECON306, ECON326 or equivalent; and BMGT230, ECON321 or equivalent. The economics and institutional features of commodity futures and options markets. Students will develop a basic understanding of the underlying price relationships between cash and futures markets and will apply this information to business risk management decision making.

AREC 445 Agricultural Development, Population Growth and the Environment (3) Restricted to Agricultural & Resource Economics majors (0111C &0111O), Environmental Science and Policy Environmental Economics concentration majors (2299D), and those minoring in Agribusiness Economics (#AG01), Environmental Economics and Policy (#AG02), or Resource and Agricultural Policy in Economic Development (#AG03) Other students will be taken off the hold file on the first day of class as space allows. Prerequisite: ECON306, ECON326 or equivalent. Development theories, the role of agriculture in economic development, the agricultural policy environment, policies impacting on rural income and equity, environmental impacts of agricultural development.

AREC 453 Natural Resources and Public Policy (3) Restricted to Agricultural & Resource Economics majors (0111C &0111O), Environmental Science and Policy Environmental Economics concentration majors (2299D), and those minoring in Agribusiness Economics (#AG01), Environmental Economics and Policy (#AG02), or Resource and Agricultural Policy in Economic Development (#AG03) Other students will be taken off the hold file on the first day of class as space allows. Prerequisite: ECON306, ECON326 or equivalent. Rational use and reuse of natural resources. Theory, methodology, and policies concerned with the allocation of natural resources among alternative uses. Optimum state of conservation, market failure, safe minimum standard, and cost-benefit analysis.

AREC 454 The Economics of Climate Change (3) Prerequisite: ECON306 or ECON326. Restricted to Agricultural and Resource Economics majors (0111C and 0111O), Environmental Science and Policy Environmental Economics Concentration majors (2299D), and those minoring in Agribusiness Economics (#AG01), Environmental Economics and Policy (#AG02), or Resource and Agricultural Policy in Economic Development (#AG03). Other students will be taken off the holdfile on the first day of class as space allows. Credit will be granted for only one of the following: AREC454 or AREC489C. Formerly AREC489C. The role of economics in the formation of climate policy; basic concepts of environmental economics including efficiency, externalities, and policy instruments; economic models of intertemporal decisions and decision making in the face of uncertainty. Applied economic analysis of specific issues and current policy initiatives.

AREC 455 Economics of Land Use (3) Restricted to Agricultural & Resource Economics majors (0111C &0111O), Environmental Science and Policy Environmental Economics concentration majors (2299D), and those minoring in Agribusiness Economics (#AG01), Environmental Economics and Policy (#AG02), or Resource and Agricultural Policy in Economic Development (#AG03) Other students will be taken off the hold file on the first day of class as space allows. Prerequisite: ECON306, ECON326 or equivalent. Fundamentals of location theory. Microeconomics of land use decisions, including determination of rent and hedonic pricing models. Impacts of government decisions on land use, including regulation (e.g., zoning), incentives (transferable development rights), provision of public services, and infrastructure investments. Impacts of land use on environmental quality, including issues relating to sprawl, agricultural land preservation, and other topics of special interest.

AREC 489 Special Topics in Agricultural and Resources Economics (3) Repeatable to 9 credits.

ARHU -- Arts and Humanities

ARHU 105 Honors Humanities First Semester Colloquium (2) Restricted to Honors Humanities entering freshmen only. Reading and discussion of the personal and social value of higher education with special attention to Arts and Humanities

ARHU 106 Honors Humanities Second Semester Colloquium (1) Prerequisite: ARHU105. For Honors Humanities students only. Formerly ARHU109. Exploration of the cultural and educational resources of campus and metropolitan area. Attendance at various additional events and activities is required.

ARHU 205 Second Year Seminar in Honors Humanities (3) One hour of lecture and two hours of discussion/recitation per week. Prerequisite: Admission to Honors Humanities Program. Recommended: ARHU105 and ARHU106. Sophomore standing. Credit will be granted for only one of the following: ARHU218A or ARHU205. Formerly ARHU218A. Seminar on basic issues and methodologies in the humanities and arts.

ARHU 206 Honors Humanities Research Semester (1) Restricted to Honors Humanities students only. Prerequisite: ARHU105, ARHU106 and ARHU205. Sophomore standing. Not open to students who have completed ARHU209. Credit will be granted for only one of the following: ARHU206 or ARHU209. Formerly ARHU209. Independent research and completion of students' chosen Keystone Project developed during the preceding three semesters in ARHU105, ARHU 106 and ARHU205. Will meet as a class during the early part of the semester and discuss issues in humanities scholarship including theory, methodology and pedagogy.

ARHU 286 Experiential Learning (3-6) Prerequisite: Permission of the College of Arts and Humanities. Restricted to students that have earned 12 credits at UM; 2.5 GPA. On-campus internships cannot be taken for credit through ARHU 286 ("on-campus" includes both the University of Maryland and other college campuses). For ARHU majors only. Designed for ARHU students who wish to complete an internship in one of the academic fields covered within the College of Arts and Humanities.

ARHU 288 Seminar: Selected Issues in Honors Humanities (3) For Honors Humanities students only. Repeatable to 9 credits if content differs. Seminar on important topics in Arts and Humanities for students in the Honors Humanities Program.

ARHU 298 Special Problems in Arts and Humanities (3) Repeatable if content differs.

ARHU 299 Studies in Humanities Technology (1-3) Prerequisite: permission of instructor. Repeatable to 6 credits if content differs. Selected topics in the use of Information Technology in the Humanities.

ARHU 308 Critical Eras: An Interdisciplinary View (3) Repeatable to 6 credits if content differs. An interdisciplinary exploration of a critical period, ranging from a year to an era, stressing the relationship between different forms of human expression and the social milieu.

ARHU 318 Writers' House Colloquium: Creative Writing Across Languages (1-3) and Cultures Students must be admitted to the Jimenez-Porter Writers' House. Prerequisite: permission of department. Repeatable to 6 credits if content differs. Colloquium designed to improve students' skills in literary and communication arts through lectures and discussions on the history and craft of writing across cultures. Topics include poetry and fiction in translation, writing for different media, genre writing, autobiography and memoir, and publishing and publication: the history and future of the book. Regular class attendance, participation and some written work will be expected of students.

ARHU 319 Writers' House Second Year Colloquium: Form and Theory of Creative (1-3) Writing Repeatable to 6 credits if content differs. Required course for Writers' House students pursuing the notation program. Offered in either poetry or imaginative prose writing. Students work at the intermediate level, refining creative writing skills through cross-cultural reading and writing exercises. As part of the course, students attend a series of lectures and readings given by professional writers.

ARHU 328 Internship in Honors Humanities (1-3) Nine hours of laboratory per week. Prerequisite: ARHU105 and permission of the Honors Humanities Director. Sophomore standing. Repeatable to 3 credits. Supervised service-learning in Honors Humanities.

ARHU 329 Undergraduate Teaching Assistantship in Honors Humanities (1-3) Nine hours of laboratory per week. Prerequisites: ARHU105, ARHU106, ARHU205 and permission of the Honors Humanities Director. Supervised pedagogical service-learning in the Honors Humanities curriculum.

ARHU 338 Undergraduate Teaching Assistantship in the Writers' House (3) Two hours of lecture per week. Prerequisite: ARHU318 and ARHU319; Open to Writer's House students only. Sophomore standing. Repeatable to 6 credits if content differs. Offers exceptional students the opportunity to work closely with a Writer's House faculty member and gain valuable experience. Writers' House UTAs also serve as peer mentors and program leaders. The TA assists with course planning, research, and student advising (as appropriate). Open to graduates of Writer's House notation program.

ARHU 386 Experiential Learning (3-6) Prerequisite: permission of the college. Junior standing.

ARHU 388 Seminar: Advanced Honors Humanities (3) For Honors Humanities students only. Repeatable to 9 credits if content differs. Advanced seminar on issues in Arts and Humanities for students in the Honors Humanities Program.

ARHU 390 Cross-Cultural Perspectives on Quality (3) Third course in sequence of four courses restricted to students in the Quest Program. Examines strategic quality management in a globalized setting with emphasis on cross-cultural communication and culturally influenced perception of quality. One of four courses in the QUEST curriculum.

ARHU 439 Interdisciplinary Studies in Arts and Humanities (3) Repeatable to 6 credits if content differs. An interdisciplinary exploration of chronological, geographical or thematic topics in Arts and Humanities.

ARHU 468 Peer Mentoring Program (1) Prerequisite: permission of department. Sophomore standing. Repeatable to 3 credits if content differs. A workshop for sophomore, junior or senior students who wish to serve as peer mentors helping first-year students to cope with the numerous issues which often arise in the transition to the university.

ARHU 498 Special Topics in Arts and Humanities (3) Repeatable if content differs.

ARMY -- Army

ARMY 101 Basic Military Science I (1) One hour of lecture and two hours of laboratory per week. An exploration of leadership application through classroom instruction, leadership training and mentorship, adventure exercises and camaraderie. Hands on experience in managerial operations and military techniques. Applied military customs and techniques through physical and mental training.

ARMY 102 Basic Military Science II (1) One hour of lecture and two hours of laboratory per week. The continuation of the exploration of leadership application through classroom instruction, leadership training and mentorship, adventure exercises and camaraderie.

ARMY 103 Basic Army Physical Fitness (2) One hour of lecture and four hours of laboratory per week. Recommended: ARMY101. This course allows beginners to learn the basic Army Physical Fitness program. Through a series of rigorous progressive workouts, the student advances from novice status to meet the requirements of the Army Physical Fitness Test. Course content also introduces students to Army managerial skills and basic military tactics and techniques.

ARMY 104 Basic Army Physical Fitness II (2) One hour of lecture and four hours of laboratory per week. Recommended: ARMY102. This course expands knowledge and proficiency in Basic Army Physical Fitness. Through a continued progressive, rigorous workouts, students improve individual fitness levels to exceed the Army Physical Fitness Test requirements. Course content also continues exploration of managerial skills and basic military tactics and techniques.

ARMY 201 Army Leadership Development (3) Three hours of lecture and four hours of laboratory per week. Sophomore standing. This course is an intensive examination of the Army Leadership Model in practice. The model is compared to leadership styles and techniques from government and industry and the comparative effectiveness of each. Students form their own personal leadership styles.

ARMY 202 Military Leadership in Practice (3) Three hours of lecture and four hours of laboratory per week. Recommended: ARMY201. Sophomore standing. This course uses the case study method to examine the Army Leadership Model as applied to assigned missions in U.S. history. Students learn to evaluate and assimilate effective leadership methods and techniques. Includes a laboratory period in which case studies are worked out and presented by individuals and groups.

ARMY 301 Advanced Military Leadership I (3) Three hours of lecture and five hours of laboratory per week. Prerequisite: Permission of Army ROTC. Junior standing. Reinforces understanding and application of Army leadership strategies, critical decision making methodologies, physical and mental fitness excellence. Includes a laboratory period in applied leadership, common military tasks and physical fitness.

ARMY 302 Advanced Military Leadership II (3) Three hours of lecture and five hours of laboratory per week. Prerequisite: Permission of Army ROTC. Junior standing. Prepares contracted students for certification at the Army National Advance Camp, a prerequisite for commissioning as an officer in the U.S. Army. Focus is directed to military tactics, squad and platoon drills, marksmanship, land navigation and fitness excellence. Includes a laboratory period in applied leadership skills as well as a three day field exercise.

ARMY 401 Advanced Military Leadership III (3) Three hours of lecture and five hours of laboratory per week. Prerequisite: Permission of Army ROTC. Senior standing. Introduces contracted students to the study of Army structure, practices and processes exercised by Army Commanders and Staff in completing personnel, logistics, training and combat operations. Includes a laboratory in applied leadership skills and two field exercises.

ARMY 402 Advanced Military Leadership IV (3) Three hours of lecture and five hours of laboratory per week. Prerequisite: Permission of Army ROTC. Senior standing. The military system and code of ethics in the military environment is studied. Topics include code of conduct during all forms of military operations, the Geneva Conventions and the ethical decision making process. Also includes a laboratory in applied leadership skills, fitness excellence and two field exercises.

ARSC -- Air Science

ARSC 059 Air Force Officer Lab (1) Two hours of laboratory per week. This course does not carry credit towards any degree at the University. Open only to AFROTC cadets. Repeatable to 8 credits if content differs. Formerly ARSC159. Offers Air Force ROTC cadet officer's practical experience in military leadership, management, organization, and customs. May include visits to military installations and flight orientation.

ARSC 100 The USAF Today I (1) Open to all university students. AFROTC cadets must also register for ARSC059. Freshmen course for AFROTC cadets. Study of topics relating to the Air Force and defense. Focuses on organizational structure and missions of the Air Force; officership; and an introduction to both written and oral communication skills.

ARSC 101 The USAF Today II (1) Open to all university students. AFROTC cadets must also register for ARSC059. Continuation of ARSC100 for freshmen AFROTC cadets. The mission, organization and systems of the U.S. Air Force offensive, defensive, and aerospace support forces and the use of these forces to support contemporary societal demands.

ARSC 200 The Development of Air Power I (1) Open to all university students. AFROTC cadets must also register for ARSC059. Sophomore course for AFROTC cadets. Study of factors contributing to the development of air power from its earliest beginnings through two world wars; the evolution of air power concepts and doctrine; introductory leadership; and assessment of communicative skills.

ARSC 201 The Development of Air Power II (1) Open to all university students. AFROTC cadets must also register for ARSC059. Continuation of ARSC 200 for sophomore AFROTC cadets. The study of historical events, leaders, and technical developments which surrounded the growth of air power; the basics of leadership; environment of an Air Force officer; and concepts of ethical behavior.

ARSC 205 The U.S. Air Force and Air Power (4) Open only to applicants selected by AFROTC to compete for entrance into the two-year AFROTC program as a contract cadet. Six week field training session held during summer months at designated Air Force bases. Successful completion is a pre-requisite for acceptance into the two year AFROTC program. Course content consists of a combination of academics, physical training and leadership laboratory experiences approximating those four year cadets gain in ARSC100/101 and ARSC200/201.

ARSC 210 Field Training (2) 18 hours of lecture, 18 hours of laboratory, and 10 hours of discussion/recitation per week. Prerequisite: AFROTC cadets with permission of department. Sophomore standing. Designed to train Air Force officer candidates in the skills of leadership, teamwork, officership, and the profession of arms. Successful completion is mandatory for all candidates in order to complete the AFROTC program and attain an Air Force commission.

ARSC 300 Management and Leadership I (3) Corequisite: ARSC059 or permission of department. Junior standing. Credit will be granted for only one of the following: ARSC300 or ARSC310. Formerly ARSC310. The study of leadership and management fundamentals, professional knowledge, Air Force doctrine, and written and oral communication skills. Case studies are used to examine leadership and management situations.

ARSC 301 Management and Leadership II (3) Corequisite: ARSC059 or permission of department. Junior standing. Credit will be granted for only one of the following: ARSC301 or ARSC311. Formerly ARSC311. Continuation of ARSC300. Study of leadership and management skills and leadership ethics as well as written and oral communication skills required of Air Force officers.

ARSC 399 Independent Study in Air and Space Power Implementation (1-3) Prerequisite: permission of department. Recommended: ARSC400 and ARSC401. Independent study to broaden understanding of the implementation of air and space power. Topics of research are selected by the student and instructor to focus the student on a particular aspect of air and space power implementation during a particular campaign or conflict.

ARSC 400 National Security Forces in Contemporary American Society I (3) Prerequisite: ARSC300 or ARSC301; or permission of department. Corequisite: ARSC059 or permission of department. Senior standing. Credit will be granted for only one of the following: ARSC320 or ARSC400. Formerly ARSC320. Study of American national security policy and processes to include information and implementation, impact of major national and international actors, and development of major policy issues.

ARSC 401 National Security Forces in Contemporary American Society II (3) Prerequisite: ARSC300 or ARSC301; or permission of department. Corequisite: ARSC059 or permission of department. Senior standing. Credit will be granted for only one of the following: ARSC321 or ARSC401. Formerly ARSC321. This course examines various subjects including: military law/justice, preparation for active duty, and current issues affecting military professionalism.

ARTH -- Art History & Archaeology

ARTH 100 Introduction to Art (3) No credit toward the major can be received for this course. Major approaches to understanding the visual arts, and includes analysis of techniques, subject matter, and form. Painting, sculpture, architecture, and the graphic arts.

ARTH 200 Art of the Western World to 1300 (3) Painting, sculpture, and architecture from prehistoric times to the Renaissance.

ARTH 201 Art of the Western World after 1300 (3) Painting, sculpture, and architecture from the Renaissance to the present.

ARTH 250 Art and Archaeology of Ancient America (3) Art and archaeology of ancient Mesoamerica from 500 B.C. to 1500 A.D.

ARTH 275 Art and Archaeology of Africa (3) Appreciation of the art of African cultures. A survey of African culture through painting, sculpture, and architecture from prehistoric times to the present.

ARTH 289 Special Topics in Art History and Archaeology (3) Repeatable to 6 credits if content differs. Selected topics in the visual arts to introduce students to the history of various modes of visual expression and communication.

ARTH 290 Art of Asia (3) South and East Asian art from prehistory through the mid-19th century.

ARTH 300 Egyptian Art and Archaeology (3) Formerly ARTH400. Sites and monuments of painting, sculpture, architecture, and the minor arts of ancient Egypt from earliest times through the Roman conquest. Emphasis on the pharaonic period.

ARTH 301 Aegean Art and Archaeology (3) Formerly ARTH401. Sites and monuments of painting, sculpture, architecture, and the minor arts of Crete, the Cycladic islands, and the Greek mainland from the earliest times to the downfall of the Mycenaean empire.

ARTH 302 Greek Art and Archaeology (3) Formerly ARTH402. Sites and monuments of painting, sculpture, architecture, and the minor arts from the Geometric through the Hellenistic period with emphasis on mainland Greece in the Archaic and Classical periods.

ARTH 303 Roman Art and Archaeology (3) Formerly ARTH403. Sites and monuments of painting, sculpture, architecture, and the minor arts from the earliest times through the third century A.D. with emphasis on the Italian peninsula from the Etruscan period through that of Imperial Rome.

ARTH 307 Late Roman and Early Christian Art and Archaeology (3) Formerly ARTH405. Painting, sculpture, architecture, and the minor arts from the early third century through the sixth century A.D.

ARTH 310 Byzantine Art and Archaeology (3) Formerly ARTH406. Painting, sculpture, architecture, and the minor arts from the seventh century to 1453 A.D.

ARTH 313 Early Medieval Art (3) Formerly ARTH410. Painting, sculpture and architecture in Western Europe, ca. 500-1150.

ARTH 314 Gothic Art (3) Formerly ARTH411. Painting, sculpture and architecture in Western Europe, ca. 1150-1400.

ARTH 320 Fourteenth and Fifteenth-Century Northern European Art (3) Formerly ARTH420. The art of northern Europe with an emphasis on painting in the Netherlands and France.

ARTH 321 Sixteenth-Century Northern European Painting (3) Formerly ARTH425. Painting in France, Germany, England, and the Low Countries during the Renaissance and Reformation.

ARTH 323 Fifteenth-Century Italian Renaissance Art (3) Formerly ARTH415. Painting, sculpture, architecture, and the decorative arts of the fifteenth century in Italy.

ARTH 324 Sixteenth-Century Italian Renaissance Art (3) Formerly ARTH416. Painting, sculpture, architecture, and the decorative arts of the sixteenth century in Italy.

ARTH 330 Seventeenth-Century European Art (3) Formerly ARTH430. Painting, sculpture and architecture concentrating on Italy, Spain, France, and England.

ARTH 335 Seventeenth-Century Art in the Netherlands (3) Formerly ARTH435. Painting, sculpture and architecture in seventeenth-century Netherlands.

ARTH 343 Eighteenth-Century European Art (3) Formerly ARTH443. From the Rococo to Neo-classicism, major developments in painting, architecture, sculpture, and the landscape garden in eighteenth-century France, England, Italy, Spain, and Germany.

ARTH 345 Nineteenth-Century European Art to 1850 (3) Formerly ARTH445. The major trends from Neo-Classicism to Romanticism in painting, sculpture, and architecture in Europe.

ARTH 346 Nineteenth-Century European Art from 1850 (3) Formerly ARTH446. The major trends from Realism through Impressionism to Symbolism and Art Nouveau, in painting, sculpture, and architecture.

ARTH 350 Twentieth-Century Art to 1945 (3) Prerequisite: ARTH201. Formerly ARTH455. Painting, sculpture, and architecture in Europe and America from the late nineteenth century to the end of World War II.

ARTH 351 Art Since 1945 (3) Prerequisite: ARTH201 or ARTH350. Formerly ARTH456. Visual art since 1945, with an emphasis on North America and Europe.

ARTH 360 History of American Art to 1876 (3) Formerly ARTH453. Painting, sculpture, architecture, and decorative arts in North America from the colonial period to 1876.

ARTH 361 American Art Since 1876 (3) Formerly ARTH460. Painting, sculpture, architecture, and the decorative arts in North America after 1876.

ARTH 370 Latin American Art and Archaeology before 1500 (3) Formerly ARTH470. Pre-Hispanic painting, sculpture, and architecture, with a focus on the major archaeological monuments of Mexico.

ARTH 371 Latin American Art and Archaeology After 1500 (3) Formerly ARTH471. The effect of mingling European visual ideas with pre-Hispanic traditions. The formation of Latin American colonial art. How Native American people transformed European ideas and forms.

ARTH 375 Ancient Art and Archaeology of Africa (3) Formerly ARTH475. Art of the African continent from rock art through the nineteenth century. The cultural meaning of painting, sculpture, architecture, and artifacts from major archaeological sites.

ARTH 376 Living Art of Africa (3) Formerly ARTH476. Art styles among the segmentary, centralized, and nomadic people of Africa. The iconography and function of their art and its relationship to their various societies, cults and ceremonies.

ARTH 378 Special Topics for Honors Students (3) Prerequisites: admission to art history honors and permission of department. For ARTH majors only. Repeatable to 6 credits. Writing of a research paper. With an instructor's permission work may be done in conjunction with a graduate colloquium or seminar.

ARTH 384 Art of Japan (3) Formerly ARTH395. A chronological survey of Japanese painting, sculpture, architecture, and the applied arts.

ARTH 385 Art of China (3) Formerly ARTH390. A chronological survey of Chinese painting, sculpture, and the applied arts.

ARTH 386 Experiential Learning (3-6) Prerequisite: permission of department. Junior standing.

ARTH 389 Special Topics in Art History and Archaeology (3) Prerequisite: permission of department. Repeatable to 6 credits if content differs.

ARTH 407 Art and Archaeology of Mosaics (3) Mosaic pavements in their archaeological, art historical, and architectural context from circa 300 B.C. through circa A.D. 700.

ARTH 418 Special Problems in Italian Renaissance Art (3) Repeatable to 6 credits if content differs. Focus upon aspects of painting, sculpture, and architecture of Renaissance.

ARTH 426 Renaissance and Baroque Sculpture in Northern Europe (3) Sculpture in France, Germany, England, and the Low Countries from the fourteenth to the seventeenth century.

ARTH 444 British Painting, Hogarth to the Pre-Raphaelites (3) A survey of British painting focusing on the establishment of a strong native school in the genres of history painting, narrative subjects, portraiture, sporting art, and landscape.

ARTH 452 Between East and West: Modernism in East and Central Europe (3) Explores the modernist movements of Eastern and Central Europe, beginning with Russia, circa 1861.

ARTH 457 History of Photography (3) History of photography as art from its inception in 1839 to the present.

ARTH 462 Twentieth-Century Black American Art (3) Formerly ARTH474. The visual arts of Black Americans in the twentieth century, including crafts and decorative arts.

ARTH 466 Feminist Perspectives on Women in Art (3) Also offered as WMST466. Credit will be granted for only one of the following: ARTH466 or WMST466. Principal focus on European and American women artists of the 19th and 20th centuries, in the context of the new scholarship on women.

ARTH 485 Chinese Painting (3) Formerly ARTH490. Chinese painting history from the second century B.C. through the twentieth century, covering cultural, stylistic and theoretical aspects.

ARTH 486 Japanese Painting (3) Formerly ARTH495. Japanese painting from the sixth through the nineteenth century, including Buddhist icon painting, narrative scrolls, and Zen-related ink painting.

ARTH 488 Colloquium in Art History (3) Prerequisite: permission of department. Repeatable to 9 credits if content differs. Colloquium to investigate a specific topic in depth.

ARTH 489 Special Topics in Art History (3) Prerequisite: permission of department. Repeatable to 9 credits if content differs.

ARTH 494 Archaeological Theories, Methods, and Practice (3) 45 semester hours. Formerly ARTH484. An examination of the theories, methods, and practices of New and Old World archaeology.

ARTH 496 Methods of Art History and Archaeology (3) Prerequisite: permission of department. For ARTH majors only. Methods of research and criticism applied to typical art-historical/ archaeological problems, familiarizing the student with bibliography and other research tools. Introduction to the historiography of art history and archaeology, surveying the principal theories, encouraging methodological debates within the discipline. Course for majors who intend to go on to graduate school.

ARTH 498 Directed Studies in Art History I (2-3) Prerequisite: permission of department. Repeatable if content differs. Junior standing.

ARTH 499 Honors Thesis (1-6) Prerequisite: permission of department. Repeatable to 6 credits if content differs.

ARTT -- Art Studio

ARTT 100 Two-Dimensional Design Fundamentals (3) Six hours of laboratory per week. Credit will be granted for only one of the following: ARTT100, ARTS100, DESN101, or APDS101. Formerly ARTS100. Principles and elements of two-dimensional design. Introduction to visual communication.

ARTT 110 Elements of Drawing I (3) Six hours of laboratory per week. Formerly ARTS110. Fundamental concepts, media, and processes of drawing. Emphasis on observation and representation in combination with individual expression. Subject matter includes still life, human figure, nature, the built environment, and conceptual projects.

ARTT 150 Introduction to Art Theory (3) Two hours of lecture and one hour of discussion/recitation per week. Fundamental concepts of global, philosophic, and critical art theory examined through various historic and contemporary texts, and the analysis of works of art.

ARTT 200 Three-Dimensional Art Fundamentals (3) Two hours of lecture and two hours of laboratory per week. Prerequisite: ARTT100 and ARTT110. Credit will be granted for only one of the following: ARTT200, ARTS200, DESN102, or APDS102. Formerly ARTS200. Fundamental concepts of three-dimensional form and space examined through the manipulation and organization of various materials.

ARTT 208 Intermediate Special Topics in Art (3) Six hours of laboratory per week. Prerequisites: ARTT110; and ARTT200. Repeatable to 6 credits if content differs. Formerly ARTS208. Development of student's work on an intermediate studio level within the context of a special topic.

ARTT 210 Elements of Drawing II (3) Six hours of laboratory per week. Prerequisite: ARTT110. Formerly ARTS210. Continuation of ARTT110 with additional emphasis on color, figure drawing, and contemporary issues.

ARTT 320 Elements of Painting (3) Six hours of laboratory per week. Prerequisites: ARTT150, ARTT200, and ARTT210; or permission of department. Formerly ARTS320. Concepts and fundamental processes of oil and/or acrylic painting.

ARTT 330 Elements of Sculpture: Metal Casting (3) Six hours of laboratory per week. Prerequisites: ARTT150, ARTT200, and ARTT210; or permission of department. Formerly ARTS330. Sculptural concepts and fundamental processes related to metal casting.

ARTT 331 Elements of Sculpture: Steel (3) Six hours of laboratory per week. Prerequisites: ARTT150, ARTT200, and ARTT210; or permission of department. Sculptural concepts and fundamental processes related to steel fabrication; torch cutting, welding, hot forging, and finishing.

ARTT 332 Elements of Sculpture: Stone (3) Six hours of laboratory per week. Prerequisites: ARTT150, ARTT200, and ARTT210; or permission of department. Formerly ARTT335. Sculptural concepts and fundamental processes using stone and related materials.

ARTT 333 Elements of Sculpture: Wood and Mixed Media (3) Six hours of laboratory per week. Prerequisites:

ARTT150, ARTT200, and ARTT210; or permission of department. Sculptural concepts and fundamental processes using wood and mixed media.

ARTT 334 Elements of Sculpture: Assembled Form and Material (3) Six hours of laboratory per week. Prerequisites: ARTT150, ARTT200, and ARTT210; or permission of department. Formerly ARTS334. Examines concepts and fundamental processes through a variety of materials, basic techniques and processes related to building, fabrication, and installation.

ARTT 340 Elements of Printmaking: Intaglio (3) Six hours of laboratory per week. Prerequisites: ARTT150, ARTT200, and ARTT210; or permission of department. Formerly ARTS340. Concepts and fundamental processes related to etching, aquatint, and drypoint.

ARTT 341 Elements of Printmaking: Woodcut and Relief (3) Six hours of laboratory per week. Prerequisites: ARTT150, ARTT200, and ARTT210; or permission of department. Formerly ARTS341. Concepts and fundamental processes related to woodcuts, linocuts, and other relief printing media.

ARTT 342 Elements of Printmaking: Collagraphy (3) Six hours of laboratory per week. Prerequisites: ARTT150, ARTT200, and ARTT210; or permission of department. Formerly ARTS342. Concepts and fundamental processes related to constructed relief printing.

ARTT 343 Elements of Printmaking: Screen Printing (3) Six hours of laboratory per week. Prerequisites: ARTT150, ARTT200, and ARTT210; or permission of department. Formerly ARTS343. Concepts and fundamental processes related to silkscreen printing.

ARTT 344 Elements of Printmaking: Lithography (3) Six hours of laboratory per week. Prerequisites: ARTT150, ARTT200, and ARTT210; or permission of department. Formerly ARTS344. Concepts and fundamental processes related to drawing, preparing, and printing images on lithograph stones or plates.

ARTT 350 Elements of Design (3) Six hours of laboratory per week. Prerequisites: ARTT200, and ARTT210; and permission of department through portfolio review. Not open to students who have completed ARTT250. Credit will be granted for only one of the following: ARTT350 or ARTT250. Formerly ARTT250. Investigation of basic design principles and methods. Introduction to basic typography, layout, illustration, exhibit design, and product/package design.

ARTT 351 Elements of Graphic Design and Illustration (3) Six hours of laboratory per week. Prerequisite: ARTT250 or ARTT350 or permission of instructor. Credit will be granted for only one of the following: ARTT350 or ARTT250. Instruction to visual communications, logo, multi-page publication, marketing graphics, as well as a variety of media and techniques of editorial illustration.

ARTT 352 Three Dimensional Graphics (3) Six hours of laboratory per week. Prerequisite: ARTT350 or permission of instructor. Graphic design and color concepts applied to three-dimensional objects and architectural environments. Presentations include scale drawings, scale models, and real size mock-ups.

ARTT 353 Elements of Photography (3) Six hours of laboratory per week. Prerequisites: ARTT150, ARTT200, and ARTT210; or permission of department. Introduction to black-and-white photography. Basic technical and aesthetic vocabulary, camera mechanics and darkroom techniques. Introduction to the photographic message and meaning in both fine art and design concept.

ARTT 354 Elements of Computer Graphics (3) Six hours of laboratory per week. Prerequisites: ARTT150, ARTT200, and ARTT210; or permission of department. Introduction to computer graphics, imaging, illustration and mixed media.

ARTT 386 Experiential Learning (3-6) Prerequisite: permission of department. Junior standing.

ARTT 388 Issues in Teaching Art in Higher Education (1) One hour of discussion/recitation per week. Prerequisite: permission of department. Must be taken in conjunction with ARTT389. Junior standing. Repeatable to 2 credits if content differs. Individual contractual agreement with faculty/mentor. Individualized discussion addressing the issues of teaching art, while simultaneously assisting in the teaching of a specific department course offering. Must have previously received an A in the specified class.

ARTT 389 Department of Art Undergraduate Teaching Assistantship (3) Six hours of laboratory per week. Prerequisite: permission of department. Must be taken in conjunction with ARTT388 or EDUC388. Repeatable to 6 credits if content differs. Individual contractual agreement with faculty/mentor. Individualized assistantship in the teaching of a specified department course offering. Must have previously received an "A" grade for the class to be assisting.

ARTT 399 Department of Art Research Assistantship (3) Nine hours of laboratory per week. Prerequisite: permission of department. Repeatable to 6 credits if content differs. Individual contractual agreement with faculty/mentor. Individualized experiential learning developed in relation to art related research issues.

ARTT 418 Advanced Drawing Studio (3) Six hours of laboratory per week. Prerequisite: ARTT150, ARTT200, and ARTT210; plus one 300-level studio course; or permission of department. Repeatable to 12 credits. Formerly ARTS418. Multi-level drawing studio emphasizing advanced concepts and processes related to drawing; emphasis on contemporary art issues and individual directions.

ARTT 428 Advanced Painting Studio (3) Six hours of laboratory per week. Prerequisite: ARTT320. Repeatable to 12 credits. Formerly ARTS428. Multi-level painting studio emphasizing advanced concepts and processes related to oil and acrylic painting; emphasis on contemporary art issues and individual directions in chosen media.

ARTT 438 Advanced Sculpture Studio (3) Six hours of laboratory per week. Prerequisites: one 300-level sculpture course; and permission of department. Repeatable to 12 credits. Formerly ARTS438. Multi-level sculpture studio; continuation of media-specific sculpture courses with emphasis on contemporary art issues and individual directions in chosen media.

ARTT 448 Advanced Printmaking Studio (3) Six hours of laboratory per week. Prerequisites: one 300-level printmaking course; and permission of department. Repeatable to 12 credits. Formerly ARTS448. Multi-level printmaking studio; continuation of media-specific printmaking courses with emphasis on contemporary art issues and individual directions in chosen media.

ARTT 449 Advanced Photography Studio (3) Six hours of laboratory per week. Prerequisite: ARTT353. Repeatable to 12 credits if content differs. Advanced photographic processes and theory. Emphasis on contemporary art issues and individual directions.

ARTT 456 Computer Modeling and Animation (3) Six hours of laboratory per week. Prerequisite: ARTT354. Introduction to computer animation as a time-based artistic medium. Technical principles and processes involved in the creation of an animated short film; students will research the various ways in which computer animation can function as a time-based medium.

ARTT 458 Graphic Design (3) Six hours of laboratory per week. Prerequisites: ARTT350 and ARTT351. Repeatable to 12 credits if content differs. Advanced techniques and theory of graphic design. Image and text, poster, magazine, film, and television graphics, propaganda symbolism included.

ARTT 459 Three-Dimensional Design: Form and Function (3) Six hours of laboratory per week. Prerequisite: ARTT352. Repeatable to 12 credits if content differs. Advanced techniques and theory of product design, furniture design, exhibit design, and package design.

ARTT 460 Seminar in Art Theory (3) Senior standing. Exploration of relationship between content and processes of art in a contemporary multi-cultural context.

ARTT 461 Readings in Art Theory (3) Prerequisite: senior standing or permission of department. Reading and critical analysis in contemporary art.

ARTT 463 Principles and Theory: African-American Art (3) Not open to students who have completed ARTH474. Formerly ARTH474. Principles basic to the establishment of aesthetic theories common to an ethnic or minority art examined through the works of art by Americans of African ancestry.

ARTT 464 Theories of Contemporary Global Artmaking (3) Prerequisite: Junior standing or permission of department. Credit will be granted for only one of the following: ARTT464 or ARTT664. Theories of contemporary global artmaking. Examination of global contemporary art. Influence of colonization, availability of material, and development of images, objects, and ideas.

ARTT 468 Seminar on the Interrelationship between Art and Art Theory (3) Prerequisite: Junior standing or permission of department. Repeatable to 6 credits if content differs. Formerly ARTS468. The relationship between a student's work and the theoretical context of contemporary art.

ARTT 469 Professional Practice (3) Prerequisite: Senior standing or permission of department. Repeatable to 6 credits if content differs. Formerly ARTT462. Business aspects of being an artist, with an emphasis on starting and maintaining a professional career.

ARTT 479 Computer Graphics (3) Six hours of laboratory per week. Prerequisite: ARTT354. Repeatable to 12 credits if content differs. Advanced techniques and theory of computer imaging, graphics, illustration, and mixed media.

ARTT 480H Honors Seminar (3) Prerequisites: Acceptance into Department Honors Program, completion of ARTT300 - 400H and 418H electives, and permission of department. Team-taught seminar focusing on relationship between student's work and the theoretical context of contemporary art.

ARTT 487 Capstone for Citation in Interdisciplinary Multimedia and Technology (1) Prerequisite: At least nine credits with the citation. Independent study: a paper or website synthesizing the various citation learning experiences.

ARTT 489 Advanced Special Topics in Art (3) Six hours of laboratory per week. Prerequisite: permission of department. Repeatable to 6 credits if content differs. Formerly ARTS489. Development of student's work on an advanced studio level within the context of a special topic.

ARTT 498 Directed Studies in Studio Art (1-3) Prerequisite: permission of department. Repeatable to 12 credits if content differs. Formerly ARTS498. Independent work. Meetings with faculty and studio time arranged.

ASTR -- Astronomy

ASTR 100 Introduction to Astronomy (3) Credit for ASTR100 cannot be obtained after, or simultaneously with, receiving credit for any astronomy course numbered 250 or higher. CORE Physical Science Non-Laboratory (PS) Course. CORE Physical Science Laboratory (PL) Course when taken concurrently with ASTR 111. Credit will be granted for only one of the following: ASTR100 or ASTR101 or ASTR120. An elementary course in descriptive astronomy, especially appropriate for non-science students. Sun, moon, planets, stars and nebulae, galaxies, evolution.

ASTR 101 General Astronomy (4) Three hours of lecture, two hours of laboratory, and one hour of discussion/recitation per week. Credit for ASTR101 cannot be obtained after, or simultaneously with, receiving credit for any astronomy course numbered 250 or higher. Credit will be granted for only one of the following: ASTR100 or ASTR101 or ASTR120. Descriptive astronomy, appropriate for non-science majors. Sun, moon, planets, stars, nebulae, galaxies and evolution. Laboratory exercises include use of photographic material, computer simulations, and observing sessions if weather permits.

ASTR 111 Observational Astronomy Laboratory (1) Two hours of laboratory per week. Corequisite: ASTR100. Not open to students who have completed ASTR101. Credit will be granted for only one of the following: ASTR111 or ASTR101. Two hours of laboratory per week. Single evening laboratory projects plus semester-long observing projects involving work both in and out of class. Lunar surface features; the nighttime sky; changing positions of sun, moon, planets; stellar spectra; observations of stars and nebulae in our galaxy.

ASTR 120 Introductory Astrophysics - Solar System (3) Pre- or corequisite: MATH115. Not open to students who have completed ASTR100 or ASTR101. Credit will be granted for only one of the following: ASTR100 or ASTR101 or ASTR120. For students majoring in astronomy or with a strong interest in science. Topics include development of astronomy, planetary orbits, electromagnetic radiation, telescopes as well as constituents and origin of the solar system (planets, satellites, comets, asteroids, meteoroids, etc.).

ASTR 121 Introductory Astrophysics II - Stars and Beyond (4) Three hours of lecture and two hours of laboratory per week. Prerequisites: MATH115 and ASTR120, or permission of department. Not open to students who have completed ASTR200. Credit will be granted for only one of the following: ASTR121 or ASTR200. For students majoring in astronomy or with a strong interest in science. Includes instrumentation, stellar properties, stellar evolution, structure of the galaxy, other galaxies, large scale structure, Big Bang Theory, and future of the universe.

ASTR 220 Collisions in Space (3) Not open to astronomy majors. Appropriate for non-science majors. Application of scientific method to the study of collisions in space. Impact cratering on planets and satellites. Possible implications for the Earth. Interactions between stars and galaxies. Possible effects due to supermassive black holes. Events like the 1994 comet crash on Jupiter and data from the Hubble Space Telescope will be highlighted.

ASTR 288 Special Projects in Astronomy (1-3) Prerequisite: permission of department. Repeatable to 6 credits.

Independent study, short research projects, tutorial reading, and assisting with faculty research and teaching under special supervision.

ASTR 300 Stars and Stellar Systems (3) Prerequisites: ASTR100 or ASTR101 and completion of CORE Distributive Studies requirement in Mathematics and Sciences or permission of department. Designed primarily for non-science majors. Study of stars-types, properties, evolution, and distribution in space; supernovae, pulsars, and black holes.

ASTR 310 Observational Astronomy (3) Three hours of lecture and one hour of laboratory per week. Prerequisites: ASTR121; PHYS171 or PHYS161; or permission of department. For ASTR majors only. Introduction to current optical observational techniques, with brief coverage of infrared, ultraviolet, and x-ray techniques. Statistics, spherical trigonometry time, catalogs, geometrical and physical optics, telescopes, and optical instruments. Effects of the atmosphere. Practical work at the observatory using a CCS camera. Some nighttime observing sessions.

ASTR 320 Theoretical Astrophysics (3) Prerequisites: ASTR121; PHYS273 or PHYS270 and PHYS271 (Formerly PHYS23); or permission of department. Application of selected physics concepts in an astrophysical context. Topics would include gravity (Keplerian motion, Virial theorem, Roche limit, dynamical friction); gas dynamics (hydrostatic equilibrium, stellar models, spiral density waves), thermodynamics and statistical physics (Boltzmann distribution, Wien displacement, convective instability, degenerate gas); atomic physics (quantum principles, H atom, permitted and forbidden lines); radiation processes (line radiation, opacity).

ASTR 330 Solar System Astronomy (3) Prerequisites: ASTR100 or ASTR101 and completion of CORE Distributive Studies requirement in Mathematics and Sciences or permission of department. Designed primarily for non-science majors. The structure of planets and of their atmospheres, the nature of comets, asteroids, and satellites. Comparison of various theories for the origin of the solar system. Emphasis on a description of recent data and interpretation.

ASTR 340 Origin of the Universe (3) Prerequisites: ASTR100 or ASTR101 and completion of the CORE Distributive Studies requirement in Mathematics and the Sciences or permission of department. Designed primarily for non-science majors. A study of our progression of knowledge about the universe. Topics include: early cosmological models, geocentric vs. heliocentric theory, curvature of space, Hubble's Law, Big Bang Theory, microwave background radiation, evolution of stars and galaxies, dark matter, active galaxies, quasars and the future of the universe.

ASTR 380 Life in the Universe - Astrobiology (3) Three hours of lecture and one hour of discussion/recitation per week. Prerequisites: ASTR100 or ASTR101 and completion of CORE Distributive Studies requirement in Mathematics and Sciences or permission of department. Designed primarily for non-science majors. Study of the astronomical perspective on the conditions for the origin and existence of life in the universe.

ASTR 386 Experiential Learning (1-3) Prerequisite: permission of department. Junior standing.

ASTR 398 Special Topics in Astronomy (3) Prerequisite: junior standing or permission of department. Repeatable to 6 credits if content differs. This course is designed primarily for students not majoring in astronomy and is suitable for nonscience students. It will concentrate study in some limited field in astronomy which will vary from semester to semester. Possible subjects for study are the solar system, extragalactic astronomy and cosmology, the inconstant universe.

ASTR 399 Honors Seminar (1-16) Enrollment is limited to students admitted to the departmental honors program in astronomy. Credit according to work done.

ASTR 410 Radio Astronomy (3) Prerequisites: ASTR121; PHYS270 and PHYS271 (Formerly PHYS263) or PHYS273; or permission of department. Introduction to current observational techniques in radio astronomy. The radio sky, radiophysics, coordinates and catalogs, antenna theory, Fourier transforms, interferometry and arrays, aperture synthesis, and radio detectors.

ASTR 415 Computational Astrophysics (3) Prerequisite: permission of department. Recommended: computer programming knowledge. For ASTR majors only. Credit will be granted for only one of the following: ASTR498C or ASTR415. Formerly ASTR498C. Introduction to the most important computational techniques being used in research in astrophysics. Topics include modern high performance computer architectures, scientific visualization and data analysis, and detailed descriptions of numerical algorithms for the solution to a wide range of mathematical systems important in astrophysics.

ASTR 421 Galaxies (3) Prerequisites: ASTR121, PHYS270, and PHYS271 (Formerly PHYS263) or PHYS273. For ASTR majors only. Credit will be granted for only one of the following: ASTR421 or ASTR498G. Formerly

ASTR498G. Introduction to structure, kinematics, and dynamics of normal and peculiar galaxies. Quantitative descriptions of normal spiral galaxies (like our Milky Way) and elliptical galaxies will be followed by more exotic considerations such as interacting and merging galaxies, and active galactic nuclei.

ASTR 422 Cosmology (3) Prerequisites: ASTR121, PHYS270, and PHYS271 (Formerly 263) or PHYS273. For ASTR majors only. Credit will be granted for only one of the following: ASTR422 or ASTR498V. Formerly ASTR498V. Introduction to modern cosmology. Topics include large scale structure of universe, the intergalactic medium, the nature of dark matter cosmological models and galaxy formation.

ASTR 430 The Solar System (3) Prerequisites: ASTR121 or ASTR200; PHYS270 and PHYS271 (Formerly 263) or PHYS273; or permission of department. Formation and evolution of the Solar System. Planetary surfaces, interiors, atmospheres, and magnetospheres. Asteroids, comets, planetary satellites, and ring systems. Emphasis on using basic physics to understand observed properties of the Solar System. Intended for students majoring in the physical sciences.

ASTR 450 Orbital Dynamics (3) Prerequisites: ASTR121; PHYS270 and PHYS271 {Formerly PHYS263} or PHYS273; or permission of department. Vectorial mechanics, motion in a central force field, gravitational and non-gravitational forces, the two-body and three-body problems, orbital elements and orbital perturbation theory, resonances in the solar system, chaos. Intended for students majoring in any of the physical sciences.

ASTR 480 High Energy Astrophysics (3) Prerequisite: ASTR121; and either PHYS270 & PHYS271 (Formerly PHYS263) or PHYS273. Recommended: ASTR320. The structure, formation, and astrophysics of compact objects, such as white dwarfs, neutron stars, and black holes, are examined. Phenomena such as supernovae and high-energy particles are also covered.

ASTR 498 Special Problems in Astronomy (1-6) Prerequisite: major in physics or astronomy or permission of department. Research or special study. Credit according to work done.

BCHM -- Biochemistry

BCHM 261 Elements of Biochemistry (3) Prerequisite: CHEM104 or CHEM233 or CHEM235. Not open to students who have completed BCHM461. For undergraduate students who desire a one-semester biochemistry course rather than a two-semester sequence. Basic chemistry and metabolism of most molecules of biological importance.

BCHM 386 Experiential Learning (3-6) Prerequisite: Learning Proposal approved by the Office of Experiential Learning Programs, faculty sponsor, and student's internship sponsor. Junior standing.

BCHM 461 Biochemistry I (3) Prerequisite: {CHEM271 and CHEM272} or {CHEM276 and CHEM277} or {CHEM113 and CHEM241 and CHEM242}. A grade of C (2.0) or better is required in all prerequisites. Not open to students who have completed BCHM261 or BCHM463. Credit will be granted for only one of the following: BCHM261, BCHM461, or BCHM463. First semester of a comprehensive introduction to modern biochemistry. Structure, chemical properties, and function of proteins and enzymes, carbohydrates, lipids, and nucleic acids. Basic enzyme kinetics and catalytic mechanisms.

BCHM 462 Biochemistry II (3) Prerequisite: BCHM461. A grade of C or better in the prerequisite is required for Life Science majors and recommended for all students. Not open to students who have completed BCHM463. Credit will be granted for only one of the following: BCHM462 or BCHM463. A continuation of BCHM 461. Metabolic pathways and metabolic regulation, energy transduction in biological systems, enzyme catalytic mechanisms.

BCHM 463 Biochemistry of Physiology (3) Prerequisite: {CHEM271 and CHEM272} or {CHEM276 and CHEM277} or {CHEM113 and CHEM241 and CHEM242}. A grade of C (2.0) or better is required in all prerequisites. Not open to students who have completed BCHM461 or BCHM462. Credit will be granted for only one of the following: BCHM463 or {BCHM461 or BCHM462}. A one-semester introduction to general biochemistry. A study of protein structure, enzyme catalysis, metabolism, and metabolic regulation with respect to their relationship to physiology.

BCHM 464 Biochemistry Laboratory (3) One hour of lecture and five hours of laboratory per week. Prerequisite: BCHM461 or BCHM463. A grade of C or better in the prerequisite is required for Life Science majors and recommended for all students. Corequisite: BCHM465. BCHM, CHEM and Nutritional Sciences majors have first priority, followed by other life science majors. Biochemical and genetic methods for studying protein function.

Site-directed mutagenesis and molecular cloning, protein purification, enzyme activity assays, computer modeling of protein structure.

BCHM 465 Biochemistry III (3) Prerequisite: BCHM461 or BCHM463. A grade of C or better in the prerequisite is required for Life Science majors and recommended for all students. Corequisite: BCHM464. Recommended: BCHM462. CORE Capstone (CS) Course. An advanced course in biochemistry. Biochemical approach to cellular information processing. DNA and RNA structure. DNA replication, transcription, and repair. Translation of mRNA to make proteins.

BCHM 485 Physical Biochemistry (3) Prerequisite: A grade of C or better is required in CHEM481. For BCHM majors only. Credit will be granted for only one of the following: CHEM482 or BCHM485. The application of physical chemistry to biological systems. Principal topics: statistical mechanics, transport processes in liquid phase, chemical and biochemical kinetics, modeling and simulation, polymer dynamics.

BIOE -- Bioengineering

BIOE 120 Biology for Engineers (3) For BIOE majors only. A combination of lectures and discussions covering biology from a utilization perspective, and lectures on illustrative mathematical models that capture the essences of characteristics of living entities. The biology material will focus on: distinguishing engineering from biological science, principles form the sciences applicable to biology, typical biological responses to environmental stimuli, scaling of biological responses, and different means to utilize living entities.

BIOE 121 Biology for Engineers Laboratory (1) For BIOE majors only. This course will build on the material covered in BIOE120. Experiments conducted in this laboratory course will cover topics such as biomechanical principles, biochemical methods, genetics and selection, scaling, microcosm interactions, human factors and imaging.

BIOE 150 Applied Ethics and Public Policy in Bioengineering (3) Also offered as HONR288L. Credit will be granted for only one of the following: BIOE150 or HONR288L. Students learn about medical devices such as heart valves and artificial hearts. Government requirements for clinical testing and the obligations that physicians, manufacturers, FDA and Congress have to patients are discussed.

BIOE 160 Biopharmaceutical Production (3) Three hours of lecture and nine hours of laboratory per week. Prerequisite: permission of department. Restricted to students in the Young Scholars Program. Credit will be granted for only one of the following: BIOE168 or BIOE160. Formerly BIOE168. Focuses on the basics of recombinant DNA technology as applied to biopharmaceutical manufacturing in a classroom setting. Students will work through a "production campaign" including all key steps of manufacturing a protein product.

BIOE 241 Biocomputation Methods (3) Prerequisite: permission of department. Credit will be granted for only one of the following: BIOE241 or ENBE241. Formerly ENBE241. Application of computer technology to biological and natural resource systems considering engineering aspects. Designed to help students in the use of computer technology for problem solving. The course will cover 4-5 software packages important for later use by the student.

BIOE 332 Transport Process Design (3) Prerequisite: MATH241 and MATH246. Credit will be granted for only one of the following: ENBE454, ENBE603, or BIOE332. Formerly ENBE454. Fluid flow, heat transfer, and mass transfer with applications in medicine, environment, biotechnology, food, agriculture, and other biosystems. Design of solutions to current problems in biological engineering is emphasized.

BIOE 340 Modeling Physiological Systems and Lab (4) Three hours of lecture and two hours of laboratory per week. Prerequisite: BIOE120 and BIOE121. Credit will be granted for only one of the following: BIOE340 or (BSCI440 and BSCI441). Topics covered will include cell and general physiology, membrane physiology, blood cells and clotting, circulation, metabolism, respiration, and the nervous system. A lab component will also be included.

BIOE 399 Independent Study in Bioengineering (1-3) Prerequisite: permission of department. Repeatable to 6 credits if content differs. Independent study.

BIOE 404 Biomechanics (3) Prerequisite: BIOE120 and BIOE121. For BIOE majors only. Introduction to the fundamentals of biomechanics including force analysis, mechanics of deformable bodies, stress and strain, multiaxial deformations, stress analysis, and viscoelasticity. Biomechanics of soft and hard tissues.

BIOE 411 Tissue Engineering (3) Prerequisite: at least one biology course and MATH241. Recommended: BSCI330 and BIOE340. A review of the fundamental principles involved in the design of engineered tissues and organs. Both biological and engineering fundamentals will be considered.

BIOE 415 Bioengineering of Exercise Response (3) Prerequisite: MATH246 or permission of department. Credit will be granted for only one of the following: BIOE415 or ENBE415. Formerly ENBE415. Exercise physiology in quantitative terms. Modeling and prediction of cardiovascular, respiratory, thermoregulatory, biomechanical, and metabolic aspects of human exercise responses.

BIOE 420 Bioimaging (3) Prerequisite: BIOE120, BIOE121, and MATH246. For BIOE majors only. Examines the physical principles behind major biomedical imaging modalities and new ways of using images for bio-related applications.

BIOE 422 Biosystems Engineering (3) Prerequisite: BIOE120 and BIOE121 or BSCI105; and one of the following courses: BIOE331, BIOE332, ENCE305, or ENME331. Conservation of mass in the context of biological systems at different scales (i.e., cellular, organ, and ecosystem), life cycles such as carbon cycle, nitrogen cycle, photosynthesis, water cycle, Kreb cycle, and aerobic and anaerobic cycles as they relate to biosystem function and health.

BIOE 425 Mechanical Properties of Biological Tissues (3) Prerequisite: ENES220 and MATH241. For BIOE majors with senior or graduate standing only. An exploration of mechanical properties of living biological tissues; including hard and soft tissues. Coverage will include all the traditional mechanical properties applied to biological tissues, including: stress-strain behavior, elastic, viscoelastic, thermomechanical, fracture, fatigue, etc. Additionally, alteration of mechanical properties of living tissues due to disease, development, growth, and remodeling will be covered.

BIOE 450 Quantitative Cell Physiology (3) One hour of lecture and two hours of discussion/recitation per week. Recommended: MATH141, MATH241, MATH246 or equivalent. Introduction to quantitative aspects of enuronal, skeletal muscle and cardiac physiological systems, with an emphasis on cellular function and plasticity.

BIOE 453 Biomaterials (3) Credit will be granted for only one of the following: ENBE453, BIOE453 or ENMA425. Formerly ENBE453. Examination of the structure and function of natural biomaterials, and cell-extracellular matrix interactions. Study physical properties of synthetic biomaterials for biomedical applications. Understanding molecular level interactions between biomolecules and biomaterials to design novel biomaterials with desirable characteristics. Application of biomaterials as implants, drug delivery systems, biosensors, engineered materials such as artificial skin and bone growth scaffolds will be covered.

BIOE 454 Biomaterials Laboratory (1) Prerequisite: CHEM231 and CHEM232. Corequisite: BIOE453. Recommended: ENES220. Hands-on experience with measurements of bulk and surface properties of biological materials, synthesis of hydrogel, surface patterning using soft lithography technique, and preparation of 3D agarose matrix of cell culture. The topics cover measurements of tensile strength, hardness, and impact strength of the biomaterials, swelling and transport behavior of hydrogel, patterning silicon substrate using self-assembled monolayer, and cell-biomaterials interactions in scaffold biomaterials.

BIOE 455 Basic Electronic Design (3) Prerequisite: PHYS142 or equivalent; MATH246, and BIOE241. Credit will be granted for only one of the following: BIOE455 or ENBE455. Formerly ENBE455. Familiarization with basic electronic circuits and the ability to produce simple electronic designs.

BIOE 456 Bioinstrumentation (3) Prerequisite: BIOE455; or permission of department. Credit will be granted for only one of the following: BIOE456 or ENBE456. Formerly ENBE456. Study of biomedical instrumentation and biomedical equipment technology. How biomedical equipment is used to measure information from the human body. Hands-on experience with representative biomedical equipment.

BIOE 460 Biotechnology and Bioproduction (3) Restricted to Juniors and Seniors only. Also offered as ENES489Q. Credit will be granted for only one of the following: BIOE460 BIOE468B, or ENES489Q. Formerly BIOE468B. Basics of recombinant DNA technology and biopharmaceutical manufacturing.

BIOE 468 Selected Topics in Bioengineering (3) Prerequisite: BIOE120, BIOE121, and permission of department. Repeatable to 9 credits if content differs. Selected topics in Bioengineering will be covered and taught by a variety of department faculty.

BIOE 471 Biological Systems Control (3) Two hours of lecture and two hours of laboratory per week. Prerequisite: BIOE455; or permission of department. Credit will be granted for only one of the following: BIOE471 or ENBE471. Formerly ENBE471. Principles of control systems designed by biological engineers and analysis of control mechanisms found in biological organisms. Apparent control strategies used by biological systems will be covered.

BIOE 482 Analysis of Bioenergy Systems (3) Prerequisite: CHEM231 and ENME232; or equivalent. Combines topics from biofuels (some of which are renewable/sustainable) and biofuel cells. Emphasizes both engineering and biological analysis while including a practical perspective based on specific examples from the current literature. Ethanol from corn and sugar cane; gasoline from biomass; use of cellulosic biomass; enzymatic and microbial biofuel cells.

BIOE 484 Engineering in Biology (3) Prerequisite: MATH221 or MATH141; PHYS141 or PHYS161; CHEM103 or higher; or permission of department. Recommended: BIOE454. Credit will be granted for only one of the following: BIOE484 or ENBE484. Formerly ENBE484. Engineering with biological systems, with emphasis on utilization, design, and modeling. Broad topics include differences between biological engineering and biological science; basic sciences and how they relate to biology; typical biological responses to environmental stimuli; scaling, and utilization of living things.

BIOE 485 Capstone Design I: Entrepreneurship, Regulatory Issues, and Ethics (3) Prerequisite: BIOE455. Senior standing. For BIOE majors only. Credit will be granted for only one of the following: BIOE485 or ENBE485. Formerly ENBE485. This is the first part of a two-semester senior capstone design course which covers principles involved in engineering design, design approaches, economics of design, ethics in engineering, and patent regulations. It also helps students learn team work and write design project proposals under the mentorship of a faculty advisor.

BIOE 486 Capstone Design II (3) Prerequisite: BIOE485 taken in the immediately preceding semester. Senior standing. For BIOE majors only. Credit will be granted for only one of the following: BIOE486 or ENBE486. Formerly ENBE486. This is the second part of the senior capstone design course. This part is independent instruction where faculty mentoring each project team works with students to order supplies, fabricate their proposed design under BIOE485, test the design, write the report and present it to their fellow seniors and board of faculty mentors. Students are taught to convert the blue print of a design to actual device and test it.

BIOE 489 Special Topics in Bioengineering (3) Repeatable to 6 credits if content differs. Exploring a variety of topics with Bioengineering.

BIOM -- Biometrics

BIOM 301 Introduction to Biometrics (3) Two hours of lecture and one hour of discussion/recitation per week. Prerequisite: MATH113 or MATH115. Credit will be granted for only one of the following: BIOM301, BMGT230, ECON321, EDMS451, GEOG305, GVPT422, PSYC200, or SOCY201. Descriptive statistics, introduction to probability, sampling, confidence interval estimation, hypothesis testing, simple regression and correlation. Emphasis on simple applications of statistical techniques and interpretation of statistical results.

BIOM 386 Experiential Learning (3-6) Prerequisite: Learning Proposal approved by the Office of Experiential Learning Programs, faculty sponsor, and student's internship sponsor. Junior standing.

BIOM 405 Computer Applications in Biometrics (1) Two hours of laboratory per week. Prerequisite: BIOM402 or equivalent. An introduction to computer applications for data analysis. This is equivalent to the computer lab of 601 and is required for students that have taken BIOM 301 and BIOM402 and wish to go directly into BIOM602.

BMGT -- Business and Management

BMGT 110 Introduction to Business and Management (3) Not open to BMGT students who have completed 56 or more credit hours. All others may take it anytime. A survey of the field of business, including its environment, organization, overall and functional management and current issues and developments.

BMGT 190 Introduction to Design and Quality (4) Three hours of lecture and two hours of discussion/recitation per week. Prerequisite: permission of College. Also offered as ENES190. Credit will be granted for only one of the following: BMGT190 or ENES190. Exposes engineering and business students to the principles of total quality, using experiential team-learning and technology-aided approaches. The first of four courses in total quality.

BMGT 198 Special Topics in Business and Management (1-3) For BMGT majors only. Repeatable to 6 credits if content differs. Introductory special topics in business and management.

BMGT 201 Introduction to Business Computing (3) Two hours of lecture and one hour of laboratory per week. Not open to computer science students. 24 semester hours. For BMGT majors only. Basic literacy course using common business computer-based applications. Considers the use of computing applications such as Microsoft Excel, Access and PowerPoint in problem solving.

BMGT 202 Decision Models with Spreadsheets (3) For BMGT majors only. The main objective is to teach how to solve problems arising in modern business environments using a spreadsheet application. The course will begin by teaching common tools available in popular spreadsheet applications. Then it will introduce the students to a variety of analytical problems arising in modern businesses and present ways in which these problems can be solved using spreadsheet applications.

BMGT 220 Principles of Accounting I (3) Basic theory and techniques of contemporary financial accounting. Includes the accounting cycle and the preparation of financial statements for single owner and partnership forms of business organizations operating as service companies or merchandisers.

BMGT 221 Principles of Accounting II (3) Prerequisite: BMGT220. Basic theory and techniques of accounting for managerial decision making. Involves the introduction of the corporation and manufacturing operations. Includes cost-volume-profit analysis and capital budgeting. Introduces the topics of income taxation and international accounting.

BMGT 230 Business Statistics (3) Prerequisite: MATH113 or MATH115 or placement in MATH220 or higher. Not open to students who have completed BMGT231, ENEE324, or STAT400. Credit will be granted for only one of the following: BIOM301, BMGT230, ECON321, EDMS451, GEOG305, GVPT422, PSYC200, or SOCY201. Introductory course in probabilistic and statistical concepts including descriptive statistics, set-theoretic development of probability, the properties of discrete and continuous random variables, sampling theory, estimation, hypothesis testing, regression and decision theory and the application of these concepts to problem solving in business and the application of these concepts to problem solving in business and management. This course does not meet requirements for management science and statistics majors.

BMGT 231 Statistical Models For Business (3) Prerequisite: MATH141 or permission of department. Required for Operations & Quality Management and Information Systems-Business majors. Credit will be granted for only one of the following: BMGT231, ENEE324, ENME392, or STAT400. These courses are not interchangeable. Please consult requirements or an advisor for what is acceptable in your program of study. An introductory course in statistical concepts, including probability from a naive set theory approach, random variables and their properties and the probability distributions of selected discrete and continuous random variables. The concepts of sampling and sampling distributions and the application of these concepts to estimation and hypothesis testing are included as are brief surveys of the regression and ANOVA models.

BMGT 298 Special Topics in Business and Management (1-3) For BMGT majors only. Repeatable to 6 credits if content differs. Introductory special topics in business and management.

BMGT 301 Introduction to Information Systems (3) Three hours of lecture and one hour of discussion/recitation per week. CMSC majors will not receive credit for this course towards their upper level concentration in their CMSC major. All BMGT majors, including students who are a double major in CMCS, must complete BMGT301 for their BMGT degree. For BMGT majors only. Comprehensive overview of information systems (IS), which explores the strategic and tactical nature of IS. The basic concepts in analyzing and designing information systems for business applications will be presented. Aspects of data management such as databases, data warehousing, data analysis, and data mining will be analyzed, and the basics of web page and web site design will be outlined. Students will also be introduced to modern information systems infrastructure such as telecommunications, networks, and information systems security. Knowledge of Excel or a similar spreadsheet tool.

BMGT 302 Developing Business Applications (3) Prerequisite: BMGT301; or permission of department. Not open to Computer Science majors and Computer Science majors will not receive credit. For BMGT majors only. The course provides a structured approach to business application development and programming. Problem solving techniques, program design, and logic, are emphasized. Hands-on exercises in which students participate in designing and developing cross-disciplinary business applications are included.

BMGT 305 Survey of Business Information Systems and Technology (3) For Information Systems-Business majors only. Computer Science majors will not receive credit. 53 semester hours. Introductory course for the decision and information science major. Covers the components of modern business information systems as well as the consequences of information technology on society and the environment.

BMGT 310 Intermediate Accounting I (3) Prerequisite: BMGT221. Comprehensive analysis of financial accounting topics related to financial statement preparation and external reporting.

BMGT 311 Intermediate Accounting II (3) Prerequisite: BMGT310. Continuation of BMGT310.

BMGT 313 Financial Statement Analysis (3) Prerequisite: BMGT221. Provides students with the tools to conduct a financial statement analysis, which is part of an overall business analysis. Involves understanding and using the information that financial statements are communicating to users.

BMGT 321 Managerial Accounting (3) Prerequisite: BMGT221. A study of the basic concepts of product costing and cost analysis for management planning and control. Emphasis is placed on the role of the accountant in organizational management, analysis of cost behavior, standard cost budgeting, responsibility accounting and relevant costs for decision-making.

BMGT 323 Taxation of Individuals (3) Prerequisite: BMGT221. Federal taxation of individuals focusing on income, exclusions, deductions, depreciation, credits and capital transactions. Property coverage includes the tax consequences of sales and dispositions of investment and business assets. Both tax planning and compliance issues are covered.

BMGT 326 Accounting Systems (3) Prerequisite: BMGT221 and (BMGT301 or BMGT201). A study of accounting systems and computer and communications technology.

BMGT 332 Operations Research For Management Decisions (3) Prerequisite: BMGT230 or BMGT231; or equivalent. Surveys the philosophy, techniques and applications of operations research to managerial decision-making. Techniques covered include: linear programming, transportation and assignment models, Markov processes and inventory and queuing models. Emphasis is placed on formulating and solving decision problems in the functional areas of management.

BMGT 340 Business Finance (3) Prerequisites: BMGT221; and {BMGT230 or BMGT231}. Topics include: the principles and practices involved in the organization, financing and rehabilitation of business enterprises; the various types of securities and their use in raising funds, apportioning income, risk and control; intercorporate relations; and new developments. Emphasis on solution of problems of financial policy faced by management.

BMGT 343 Investments (3) Prerequisite: BMGT340. An introduction to financial investments. Topics include: securities and securities markets; investment risks, returns and constraints; portfolio policies; and institutional investment policies.

BMGT 350 Marketing Principles and Organization (3) Prerequisite: ECON200 or ECON205. An introduction to the concepts and principles of marketing including the marketing of service and nonprofit organizations. Provides an overview of all the concepts in marketing including relationship marketing, product development, pricing, promotion, marketing research, consumer behavior, international marketing, distribution and internal marketing to employees.

BMGT 352 Customer-Centric Innovation (3) Prerequisite: BMGT350. Addresses the management of new products and services with a focus on the innovation process, specifically the development and launching of new products or services: Opportunity Identification, Concept Generation, Design, Testing and Launch.

BMGT 353 Retail Management (3) Prerequisites: BMGT220; and BMGT350. Planning and implementing retail marketing strategy. Store and nonstore (catalog, Internet) retailing. Evaluation of how environmental trends in the consumer market, competition, the economy and technology affect retail strategy in the U.S. and global market.

BMGT 357 Retailing and Marketing Internship (3-6) Prerequisites: BMGT350 and permission of department. For BMGT majors only. Supervised work experience with a firm engaged in marketing goods or services. Students apply concepts learned in marketing classes and analyze the firm's organizational structure, environment and marketing strategy.

BMGT 360 Human Resource Management (3) The basic course in human resource management includes manpower planning, recruitment, selection, development, compensation and appraisal of employees. Explores the impact of scientific management and unionism on these functions.

BMGT 361 Entrepreneurship: Starting and Managing the Entrepreneurial Venture (3) For BMGT majors only.

Not open to students who have completed BMGT261 or BMGT461. Credit will be granted for only one of the following: BMGT261, BMGT361, or BMGT461. Formerly BMGT261. Focuses on the early development of a new venture. Topics include: idea-getting, opportunity recognition, feasibility studies, new venture financing and startup. Guests speakers and practicing entrepreneurs offer real world guidance. Restricted to students admitted to the Smith Entrepreneurship Fellows Program.

BMGT 362 Labor Relations (3) A study of the development and methods of organized groups in industry with reference to the settlement of labor disputes. An economic and legal analysis of labor union and employer association activities, arbitration, mediation and conciliation collective bargaining, trade agreements, strikes, boycotts, lockouts, company unions, employee representation and injunctions.

BMGT 363 Leadership in Organizations (3) Credit will be granted for only one of the following: BMGT363 or BMGT498D. Formerly BMGT498D. Provides a comprehensive understanding of fundamental leadership concepts, theories, and skills in organizations and applies to assessing and developing effective leadership practices in organizations.

BMGT 364 Management and Organization Theory (3) The development of management and organization theory, nature of the management process and function and its future development. The role of the manager as an organizer and director, the communication process, goals and responsibilities.

BMGT 365 Entrepreneurial Finance, and Private Equity (3) Prerequisite: BMGT361 or BMGT461. Junior standing. Studies venture capital and private equity using a combination of cases, lectures and guest speakers. Addresses how venture capitalists provide capital to start-up firms in growing industries and how private equity markets provide capital to help established medium-sized firms (often family businesses) grow and restructure. Focuses on how financial, legal, and economic issues are dealt with in the financial contracts between venture capitalists and their limited partners and between capitalists (or other private equity investors) and the firms in which they invest.

BMGT 366 Growth Strategies for Emerging Companies (3) Prerequisite: BMGT361 or BMGT461. Junior standing. Offers practical management tools that are needed to build a new venture into a significant enterprise. The competencies, strategies and structures of successful high performance businesses are studied through cases, videos and guest lecturers. Topics include leadership, internal growth strategies, merger, acquisition and franchising.

BMGT 367 Career Search Strategies in Business (1) One hour of lecture and one hour of laboratory per week. For BMGT majors only. An overview and opportunity to practice job search skills critical to obtaining internships and full-time positions. Course will cover strategies for exploring career options, preparing job search materials, development of job search skills such as interviewing and networking. Students are encouraged to take this course in the sophomore or junior year.

BMGT 370 Introduction to Transportation (3) An overview of the transportation field with an emphasis on freight movements from the perspective of both providers of capacity and users of freight services. Examines the characteristics of the freight modes and the role of each mode as a major component of logistics and supply chain management. Explores the economics, energy use, and finances of each mode as well as the impact of government policies on each mode's future. Discussion of infrastructure and capacity needs of the transportation system and its ability to support the economy.

BMGT 372 Introduction to Logistics and Supply Chain Management (3) Supply chain management involves the coordination of suppliers, manufacturers, distributors, and retailers to ensure that products and services are available to the final consumer in a timely and cost-effective fashion. Logistics management is the subset of supply chain management dealing with the physical flows of product and includes such activities as transportation management, warehousing, materials handling, inventory management, and order fulfillment. Attention is paid to the logistics cost trade-offs within the firm and between members of the supply chain.

BMGT 373 Supply Chain Management Internship (3) Prerequisite: BMGT370 or BMGT372, and permission of department. Involves supervised work experience in supply chain management, logistics and/or transportation. Students will be expected to relate course material to work experience in an analysis of a firm's operations.

BMGT 380 Business Law I (3) Legal aspects of business relationships. Examination of torts and business crimes, contracts and agency. The law of personal property and bailment relationships. Survey of public policy issues.

BMGT 381 Business Law II (3) Prerequisite: BMGT380 or permission of department. The Uniform Commercial Code, including sales, commercial paper, secured transactions, bulk sales and documents of title. The law of partnerships and corporations. Reorganization and liquidation under the bankruptcy laws. The law of real property, landlord and tenant relationships and decedents' estates.

BMGT 385 Operations Management (3) Credit will be granted for only one of the following: BMGT385 or ENME426. Studies the design, management and improvement of a firm's processes and systems for creation and delivery of products and services. Includes strategic and operational views of supply chain, product development, and capacity analysis, highlighting the competitive advantages that operations management can provide the firm.

BMGT 386 General Business Internship (3) Prerequisite: permission of department. For BMGT majors only. Supervised work experience in business. Students will be expected to relate course material to work experience in an analysis of a firm's operations.

BMGT 390 Systems Thinking for Managerial Decision Making (3) Seven hours of lecture per week. Prerequisite: BMGT190H or ENES190H. For QUEST students only. Also offered as ENES390. Credit will be granted for only one of the following: BMGT390, BMGT498X, ENES390, or ENES498X. Formerly BMGT498X. An introduction to the theory, concepts, tools, and practices of systems thinking to enhance managerial decision making. Offers a blend of theory, real-life examples, and proven methods to initiate and sustain an organization-wide reorientation towards systems thinking.

BMGT 392 Introduction to International Business Management (3) Prerequisite: ECON200. A study of the domestic and foreign environmental factors affecting the international operations of U.S. business firms. The course also covers the administrative aspects of international marketing, finance and management.

BMGT 398 Individual Study in Business and Management (1-3) Prerequisite: permission of department. Repeatable to 6 credits.

BMGT 402 Database Systems (3) Prerequisite: BMGT301 or equivalent. Recommended: BMGT302. Introduction to basic concepts of database management systems. Relational databases, query languages and design will be covered. File-processing techniques are examined.

BMGT 403 Systems Analysis and Design (3) Prerequisite: BMGT301 or equivalent. Recommended: BMGT302. Techniques and tools applicable to the analysis and design of computer-based information systems. System life cycle, requirements analysis, logical design of databases and performance evaluation. Emphasis on case studies. Project required that involves the design, analysis and implementation of an information system.

BMGT 405 Business Telecommunications (3) Prerequisite: BMGT301 or equivalent. Concepts of business data communications and data processing. Application of these ideas in computer networks, including basic principles of telecommunications technology, computer network technology, data management in distributed database systems and management of the technical and functional components of telecommunications technology.

BMGT 406 Electronic Commerce Application Development (3) Prerequisite: BMGT302 and BMGT402. For BMGT majors only. Develops understanding of the fundamental principles of usability as they apply to electronic commerce applications. Aspects of website evaluation are examined. Course will also cover the design of usable business websites using current tools and techniques.

BMGT 407 Information Systems Projects (3) Prerequisite: BMGT402 and BMGT403 For Information Systems-Business majors only. Senior standing. Senior capstone course for the decision and information sciences major. Collected knowledge from the DIS courses and application to significant problems of size and complexity. State-of-the-art research ideas and current business and industrial practices in information systems.

BMGT 408 Special Topics in Decision and Information Technologies (3) Prerequisite: permission of department (prerequisite may vary based on changing topics). Repeatable to 9 credits if content differs. Selected advanced topics in the various fields of study in decision and information technologies.

BMGT 410 Government Accounting (3) Prerequisite: BMGT221. Credit will be granted for only one of the following: BMGT410 or BMGT428A. An introduction to the theory and practice of accounting and financial reporting as applied in both federal and state/local governments, with a focus on generally accepted accounting principles applicable in each. Topics include analyzing transactions; recognizing transactions in the accounting cycles; and preparing and analyzing financial statements and the overall financial reports at both the federal and state/local government levels.

BMGT 411 Ethics and Professionalism in Accounting (3) Prerequisite: BMGT311. For accounting majors only. 86

semester hours. Analysis and discussion of issues relating to ethics and professionalism in accounting.

BMGT 417 Taxation of Corporations, Partnerships and Estates (3) Prerequisite: BMGT221. Federal taxation of corporations using the life-cycle approach-formation, operation, assessment, merger, reorganization and liquidation. Overviews of pass-through entities - partnerships and s-corporations -using the life-cycle approach, and the tax consequences of wealth transfers by individuals - gift and estate taxation. Both tax planning and compliance issues are addressed.

BMGT 422 Auditing Theory and Practice (3) Prerequisite: BMGT221. A study of the independent accountant's attest function, generally accepted auditing standards, compliance and substantive tests and report forms and opinions.

BMGT 423 Fraud Examination (3) Prerequisite: BMGT310. Covers fraud prevention, detection and investigation techniques. The traditional accounting areas of fraud-fraudulent financial accounting and misappropriation of assets as well as recent and historical cases of fraud will also be examined. Current fraud topics will be discussed.

BMGT 424 Advanced Accounting (3) Prerequisite: BMGT311. Advanced accounting theory applied to specialized topics and current problems. Emphasis on consolidated statements and partnership accounting.

BMGT 426 Advanced Managerial Accounting (3) Prerequisite: BMGT321. Advanced cost accounting with emphasis on managerial aspects of internal record-keeping and control systems.

BMGT 428 Special Topics in Accounting (3) For Accounting majors only. Prerequisite: BMGT310. Repeatable to 9 credits if content differs. Selected advanced topics in Accounting.

BMGT 430 Linear Statistical Models in Business (3) Prerequisite: BMGT230 or BMGT231 or permission of department. Model building involving an intensive study of the general linear stochastic model and the applications of this model to business problems. The model is derived in matrix form and this form is used to analyze both the regression and ANOVA formulations of the general linear model.

BMGT 434 Introduction to Optimization (3) Prerequisite: MATH220 or MATH140; or equivalent. Recommended: MATH221 or MATH141. For BMGT majors only. Introduces concepts and techniques of operations research to model and solve business decision problems, focusing on optimization and commercially available software tools. Models include linear programming, the transportation and assignment problems, network flow models, and non-linear programming. Emphasis is placed on analyzing business scenarios and formulating associated decision models.

BMGT 435 Business Process Simulation (3) Prerequisite: BMGT230 or BMGT231 or equivalent. For BMGT majors only. Develop and plan simulation studies, build simulation models with special purpose software, analyze and interpret the results. Extensive use of applications and real-world examples. The emphasis is on model formulation and the interpretation of results, rather than mathematical theory.

BMGT 438 Special Topics in Operations Management (1-3) Repeatable to 6 credits if content differs. Selected advanced topics in operations management.

BMGT 440 Advanced Financial Management (3) Prerequisite: BMGT340. Analysis and discussion of cases and readings relating to financial decisions of the firm. The application of finance concepts to the solution of financial problems is emphasized.

BMGT 443 Applied Equity Analysis and Portfolio Management (3) Prerequisite: BMGT343. Study and application of the concepts, methods, models, and empirical findings to the analysis, valuation and selection of securities, especially common stock.

BMGT 444 Futures and Options Contracts (3) Prerequisite: BMGT343. Credit will be granted for only one of the following: BMGT444 and MATH424. The institutional features and economic rationale underlying markets in futures and options. Hedging, speculation, structure of futures prices, interest rate futures, efficiency in futures markets and stock and commodity options.

BMGT 445 Banking and Financial Institutions (3) Prerequisites: BMGT340. Recommended: ECON330. Analysis and discussion of cases and readings in commercial bank management. The loan function is emphasized; also the management of liquidity reserves, investments for income and source of funds. Bank objectives, functions, policies, organization, structure, services and regulation are considered.

BMGT 446 International Finance (3) Prerequisite: BMGT340. Financial management from the perspective of the multinational corporation. Topics covered include the organization and functions of foreign exchange and international capital markets, international capital budgeting, financing foreign trade and designing a global financing strategy. Emphasis of the course is on how to manage exchange and political risks while maximizing benefits from global opportunity sets faced by the firm.

BMGT 447 Internship and Research in Finance (3) Prerequisites: BMGT340 and BMGT343 (or 400 level finance elective); and core requirements in business and management; and permission of department. Recommended: finance major courses. For finance majors only. Supervised, sponsored internship in a corporation or financial institution. Analysis of approved research topic in corporate finance, investments or financial institutions/markets.

BMGT 448 Special Topics in Finance (1-3) Repeatable to 6 credits if content differs. Selected advanced topics in finance.

BMGT 449 Investment Fund Management: Lemma Senbet Fund (3) Prerequisite: BMGT343 and permission of department. Corequisite: BMGT443. Repeatable to 6 credits if content differs. Formerly BMGT498F. The Lemma Senbet Fund is a year-long, advanced finance course available to undergraduate finance majors in their senior year. Ten to twelve students will be selected in the spring of their junior year to participate on the fund, two as portfolio managers and eight to ten as equity analysts. The course provides students with the opportunity to apply what they have learned in finance classes to actual investment decisions, through researching real companies and managing a portfolio of real money.

BMGT 450 Integrated Marketing Communications (3) Prerequisite: BMGT350. For BMGT majors only. Credit will be granted for only one of the following: BMGT354 or BMGT450. Formerly BMGT354. In-depth study of coordinated marketing activities including advertising, sales promotion, Internet marketing, direct marketing and personal selling. Emphasizes strategic planning to effectively use these promotional tools to communicate with customers and meet marketing goals. Blends theory and current practice to provide managerial orientation.

BMGT 451 Consumer Analysis (3) Prerequisite: BMGT350. Recommended: PSYC100; and PSYC221. Identifying buyer behavior concepts relevant to a specific marketing problem so that appropriate marketing decisions can be made. Conceptual frameworks are drawn from psychology, sociology, economics, and other social sciences to aid in understanding the behavior of ultimate and industrial buyers.

BMGT 452 Marketing Research Methods (3) Prerequisite: BMGT230 and BMGT350. Focuses on aiding marketing decision-making through exploratory, descriptive and casual research. Develops student skills in designing market research studies, including selection of data collection method, development of data collection instrument, sample design, collection and statistical analysis of data and reporting the results.

BMGT 454 Global Marketing (3) Prerequisite: BMGT350. Marketing functions from the global executive's viewpoint, including coverage of global marketing policies relating to product adaptation, data collection and analysis, channels of distribution, pricing, communications and cost analysis. Consideration is given to the cultural, legal, financial and organizational aspects of global marketing.

BMGT 455 Sales Management (3) Prerequisite: BMGT350. The roles of the sales executive as a planner, manager of resources and marketing functions and recruiter, trainer, motivator and leader of field sales personnel. Techniques and sequence of problem analysis for selling and sales management decisions and to the practical framework in which these decisions take place. Teaching vehicles feature strong classroom interactions, cases, journal articles, research findings, guest sales managers, debates, and modern company practices.

BMGT 457 Marketing Policies and Strategies (3) Prerequisite: BMGT350. This capstone course ties together various marketing concepts using the fundamentals of strategic market planning as the framework. Application of these principles is accomplished by analyzing and discussing cases and by playing a marketing strategy computer simulation game. Analysis of current business articles to understand the link between theory and real-world problem solving.

BMGT 458 Special Topics in Marketing (1-3) Repeatable to 6 credits if content differs. Selected advanced topics in marketing.

BMGT 460 Human Resource Management: Analysis and Problems (3) Prerequisite: BMGT360. Recommended: BMGT230. Research findings, special readings, case analysis, simulation and field investigations are used to develop a better understanding of personnel problems, alternative solutions and their practical ramifications.

BMGT 461 Entrepreneurship (3) Not open to students who have completed BMGT261 or BMGT361. Credit will be granted for only one of the following: BMGT261, BMGT361, or BMGT461. Process of creating new ventures, including evaluating the entrepreneurial team, the opportunity and the financing requirements. Skills, concepts, mental attitudes and knowledge relevant for starting a new business.

BMGT 462 Employment Law for Business (3) This course is restricted to BMGT majors with 72 hours completed. Legal framework of industrial relations with special emphasis on employment discrimination, i.e., wrongful termination, sex discrimination, sexual harassment, age discrimination, disability, etc.

BMGT 463 Cross-cultural Challenges in Business (3) For BMGT majors only. Examines in depth the nature of international cultural value-differences and their behavioral-related effects in the workplace. Topics include decision-making and leadership styles and reactions to various work assignments and reward structures.

BMGT 464 Organizational Behavior (3) Prerequisite: BMGT 364. An examination of research and theory concerning the forces which contribute to the behavior of organizational members. Topics covered include work group behavior, supervisory behavior, intergroup relations, employee goals and attitudes, communication problems, organizational change and organizational goals and design.

BMGT 465 Business Plan For The New Venture (3) Prerequisite: BMGT361 or BMGT461. Each student focuses on the production of a business plan that will be accepted for an annual business plan competition. Business plans of sufficient quality may be submitted to attract financing. Topics include a deep review of business construction and its derivative short forms.

BMGT 466 Global Business Strategy (3) For BMGT majors only. Focuses on the strategic challenges that directly result from and are associated with the globalization of industries and companies. Topics include drivers of industry globalization, difference between global and multi-domestic industry, global expansion strategies, sources of competitive advantage in a global context, and coordination of a company across a global network.

BMGT 467 Undergraduate Seminar in Human Resource Management (3) 86 semester hours. For BMGT majors only. Strategic human resource management, compensation and rewards and performance management skills. Guest lecturer presentations.

BMGT 468 Special Topics in Management and Organization (1-3) Repeatable to 6 credits if content differs. Selected advanced topics in management and organization.

BMGT 470 Carrier Management (3) Prerequisite: BMGT370. The study of the wide range of issues facing managers in transportation. This includes decisions on market entry, pricing, competitive responses, service levels, marketing strategies, capital structure, and growth objectives. Specific management decisions and overall strategies pursued by management are examined.

BMGT 471 Seminar in Supply Chain Management: An Executive Perspective (3) Prerequisite: BMGT372. Formerly:BMGT488L and BMGT498L. Designed to provide students intensive interaction with senior supply chain executives from a cross-section of industries. Executives will share their insights about leading competitive supply chains in the global marketplace and assist students in understanding how to develop supply chain career strategies. Students will research the competitive supply chain dynamics of each executive's industry and review/analyze their findings with the executive.

BMGT 472 Purchasing and Inbound Logistics (3) Prerequisite: BMGT372. Analysis of the resupply activities of logistics management, including purchasing policies, transportation planning, and inventory control. Attention is directed toward total cost minimization and the establishment of a sustainable competitive advantage based on procurement.

BMGT 475 Supply Chain Strategy and Network Design (3) Prerequisite: BMGT372. Analysis of the strategic aspects of supply chain management. Emphasis on the creation of end-user value through supply chain cost reductions, service improvements or both. Attention is directed toward the enabling role of technology in support of strategy evaluation and implementation.

BMGT 476 Technology Applications in Supply Chain Management (3) Prerequisite: BMGT372. An understanding of the role of technology in managing the supply chain. Provides students with hands-on experience in advanced software systems that build on top of enterprise resource planning systems. Major emphasis is placed on demonstrating that these systems result in supply chain cost reductions and service improvements.

BMGT 477 International Supply Chain Management (3) The study of the importance of the supply chain management within a global context. Topics covered include: the structure, service, pricing and competitive relationships among international carriers and transport intermediaries as well as documentation, location decisions, international sourcing/distribution and management of inventory throughout the international supply chain.

BMGT 482 Business and Government (3) Prerequisite: ECON200. Focus is on the complex interrelationships between business and government. Explores areas in which business and government are allies (cooperative research and financing program) and adversaries (regulation). Emphasizes a strategic management approach by business to government involvement in economic affairs.

BMGT 484 Electronic Marketing (3) Prerequisite: BMGT350. For BMGT majors only. Examines the process of developing, implementing and analyzing strategies for successfully marketing a variety of existing and potential products and services on the Internet. Special attention devoted to the tools and techniques unique to the electronic media.

BMGT 485 Project Management (3) Prerequisite: BMGT230 or BMGT231; or equivalent. 72 semester hours. For BMGT majors only. Modern project management techniques that are used by modern practicing professionals will be covered. Particular attention is given to the management of technology based systems and projects in a business enterprise. The topics covered include: defining project scope, alignment of projects with enterprise strategy, managing project cost, time and risks using tools such as CPM/PERT, and measuring project performance.

BMGT 486 Total Quality Management (3) Prerequisite: BMGT230 or equivalent. Total Quality Management and the synergy required between functions to obtain the customer's quality demands. Statistical tools which are mandatory in any successful quality effort.

BMGT 487 Six Sigma Innovation (3) Prerequisite: BMGT230, BMGT231, STAT400 or ENME392. Enhances the overall understanding of Six Sigma Strategy, Tools and Methods to positively influence the performance of a business process, a product or service. Highlights the application of Define-Measure-Analyze-Improve-Control (DMAIC),Design For Six Sigma (DFSS), and the pursuit of Critical to Quality criteria (CTQ's) in a collaborative perspective, one that recognizes a balance between efficiency, and effectiveness and between statistical analysis and statistical thinking.

BMGT 488 Special Topics in Logistics, Business, and Public Policy (1-3) Repeatable to 6 credits if content differs. Selected advanced topics in logistics, business and public policy.

BMGT 490 Quest Consulting and Innovation Practicum (4) Prerequisite: BMGT390 or ENES390. Also offered as ENES490. Credit will be granted for only one of the following: BMGT490 or ENES490. Final course in the QUEST Honors Fellows Program three-course curriculum. Based on a team-based consulting project with one of Questýs professional partners. A project advisor and professional champion supervise each student team. Requires extensive out-of-class work.

BMGT 493 Honors Study (3) Prerequisite: permission of department. First semester of the senior year. The course is designed for honors students who have elected to conduct intensive study (independent or group). The student will work under the direct guidance of a faculty advisor and the Assistant Dean of Undergraduate Studies. They shall determine that the area of study is of a scope and intensity deserving of a candidate's attention. Formal written and/or oral reports on the study may be required by the faculty advisor.

BMGT 494 Honors Study (3) Prerequisite: BMGT493, and continued candidacy for honors in Business and Management; and permission of department. Second semester of the senior year. The student shall continue and complete the research initiated in BMGT 493, additional reports may be required at the discretion of the faculty advisor and Assistant Dean of Undergraduate Studies.

BMGT 495 Business Policies (3) Prerequisites: BMGT340; and BMGT350; and BMGT364. For BMGT majors only. A case study course where students apply what they have learned of general management principles and their specialized functional applications to the overall management function in the enterprise.

BMGT 496 Business Ethics and Society (3) Prerequisite: one course in BMGT; or permission of department. A study of the standards of business conduct, morals and values as well as the role of business in society with consideration of the sometimes conflicting interests of and claims on the firm and its objectives. Emphasizes a strategic approach by business to the management of its external environment.

BMGT 498 Special Topics in Business and Management (3) Prerequisite: permission of department. Repeatable to 6 credits if content differs. Special topics in business and management designed to meet the changing needs and interests of students and faculty.

BSCI -- Biological Sciences Program

BSCI 103 The World of Biology (4) Three hours of lecture and three hours of laboratory per week. Formerly: BIOL101 and BIOL102. An introduction to modern biology for the non-science major. Major themes include molecular biology, cell biology, evolution and organismal biology. Relevance of study of biology to modern human life will be emphasized. Course not acceptable toward degree in College of Chemical and Life Sciences.

BSCI 105 Principles of Biology I (4) Three hours of lecture and three hours of laboratory per week. Prerequisite: Math eligibility of in MATH111 or higher. For science majors. Formerly BIOL105. Basic principles of biology with special emphasis on cellular and molecular biology.

BSCI 106 Principles of Biology II (4) Three hours of lecture and three hours of laboratory per week. Prerequisite: Math eligibility or MATH111 or higher. For science majors. Formerly BIOL106. Basic principles of biology with special emphasis on organismal, ecological and evolutionary biology.

BSCI 120 Insects (3) Two hours of lecture and one hour of discussion/recitation per week. Formerly ENTM100. A survey of the major groups of insects, their natural history, and their relationships with humans and their environment. Course not acceptable toward major requirements in the College of Chemical and Life Sciences.

BSCI 121 Beekeeping (2) Formerly ENTM111. First semester. A study of the life history, behavior and seasonal activities of the honeybee, its place in pollination of flowers with emphasis on plants of economic importance and bee lore in literature. Course not acceptable toward major requirements in the College of Chemistry and Life Sciences.

BSCI 122 Microbes and Society (4) Three hours of lecture and two hours of laboratory per week. Credit will be granted for only one of the following: BSCI122 or BSCI223. Formerly MICB100. Introduction to the historical, societal and conceptual aspects of microbiology and biotechnology. Course not acceptable toward major requirements in the College of Chemistry and Life Sciences.

BSCI 124 Plant Biology for Non-Science Students (3) CORE Life Sciences Lab (LL) Course only when taken concurrently with BSCI 125. For non-science majors only. Not open to students who have completed BSCI105/BIOL105. Formerly PBIO100. A basic course in plant biology specifically designed for the non-science student. Emphasis is placed on an evolutionary and ecological approach to studying fundamental concepts and processes of plants, their place in the biosphere, the importance of plants to man, and the manner in which humans impact on plants and their environment. This course will not count toward graduation requirements for any student in the College of Chemistry and Life Sciences or the College of Agriculture and Natural Resources.

BSCI 125 Plant Biology Laboratory (1) Two hours of laboratory per week. CORE Life Sciences Lab (LL) Course only when taken concurrently with BSCI 124. Corequisite: 124. For non-science majors only. Not open to students who have completed BSCI105. Credit will be granted for only one of the following: BSCI105 or BSCI125. Formerly PBIO101. An introduction to the biology of plants with emphasis on the processes by which plants function, the diversity of plants, and the importance of plants to humans. This course will not count toward graduation requirements for any student in the College of Chemistry and Life Sciences or the College of Agriculture and Natural Resources. CORE Lab Science.

BSCI 201 Human Anatomy and Physiology I (4) Three hours of lecture and three hours of laboratory per week. Prerequisite: BSCI105 or equivalent. Formerly ZOOL201. Anatomy and physiology of the skeletal, muscular, neural, endocrine, and sensory systems. Course not acceptable toward major requirements in the College of Chemistry and Life Sciences.

BSCI 202 Human Anatomy and Physiology II (4) Three hours of lecture and three hours of laboratory per week. Prerequisite: BSCI201 or permission of department. Formerly ZOOL202. Anatomy and physiology of the cardiovascular, respiratory, immune, digestive, urinary and reproductive systems. Course not acceptable toward major requirements in the College of Chemistry and Life Sciences.

BSCI 205 Environmental Science (3) Formerly PBIO235. Basic ecological principles as they relate to the ecological dilemmas of overpopulation, pollution, increasing consumption of natural resources, and deteriorating land use ethics facing mankind today. Course not acceptable toward major requirements in the College of Chemistry and Life Sciences.

BSCI 206 Chesapeake: A Living Resource (3) Credit will be granted for only one of the following: BSCI206 or BSCI373. Formerly PBIO255. The living resources of the Chesapeake Bay from an ecosystem perspective. Designed for non-science majors, it will acquaint students with the Bay's watershed, its physical environment, and its living organisms, with an emphasis on the connections between these factors. Understanding the relationships between physical, chemical and biological processes will equip students to comprehend and appreciate the remarkable productivity of our estuary, as well as provide them with the knowledge needed to protect the Bay. Course not acceptable toward major requirements in the College of Chemistry and Life Sciences.

BSCI 207 Principles of Biology III - Organismal Biology (3) Prerequisite: BSCI105 and BSCI106. Pre- or corequisite: CHEM103 or CHEM131; or equivalent. Credit will be granted for only one of the following: BSCI207 or BSCI279D. The diversity, structure and function of organisms as understood from the perspective of their common physicochemical principles and unique evolutionary histories.

BSCI 222 Principles of Genetics (4) Three hours of lecture and two hours of discussion/recitation per week. Prerequisite: {BSCI105 and BSCI106 and (CHEM131 and CHEM132)} or {BSCI105 and two semesters of chemistry}. Credit will be granted for only one of the following: BIOL222 or BSCI222. Formerly BIOL222. Principles and mechanisms of heredity and gene expression. Considers plant, animal, and microbial organisms.

BSCI 223 General Microbiology (4) Two hours of lecture and four hours of laboratory per week. Prerequisite: BSCI105. Credit will be granted for only one of the following: BSCI122 or BSCI223. Formerly MICB200. Fundamental concepts in morphology, physiology, genetics, immunology, ecology, and pathogenic microbiology. Applications of microbiology to medicine, the food industry and biotechnology.

BSCI 224 Animal Diversity (4) Three hours of lecture and three hours of laboratory per week. Prerequisite: BSCI106. Formerly ZOOL210. Comparative study of the diversity of animal form and function, including analysis of structures and mechanisms which different organisms utilize to cope with similar requirements of life.

BSCI 230 Cell Biology and Physiology (4) Three hours of lecture and three hours of laboratory per week. Prerequisites: BSCI105 and CHEM103. Biochemical and physiological mechanisms underlying cellular function. Properties of cells which make life possible and mechanisms by which cells provide energy, reproduce, and regulate and integrate with each other and their environment.

BSCI 258 College Park Scholars Internship (1-3) For College Park Scholars - Life Sciences students only. Repeatable to 6 credits if content differs. Formerly BIOL258. Credit to be determined by CPS Director. Must be completed by end of sophomore year. Course not acceptable toward major requirements in the College of Chemistry and Life Sciences.

BSCI 279 Supplemental Study (1-3) Prerequisite: permission of department. Repeatable to 6 credits. Formerly ZOOL299. Research or special study to complement a course taken previously which is not fully equivalent to current departmental requirements. Credit according to work done.

BSCI 288 Internship (1-6) Prerequisite: permission of department. Repeatable to 12 credits if content differs. Formerly BIOL288. An individual experience arranged by the student with the instructor. Does not satisfy biology major requirements. Course not acceptable toward major requirements in the College of Chemistry and Life Sciences.

BSCI 289 Off-Campus Internship (1-3) Prerequisite: permission of department. For LFSC majors only. Repeatable to 5 credits if content differs. Formerly BIOL289. Elective credit for formally established off-campus research internship. Permission of Director of Outreach required. Course not acceptable toward major requirements in the College of Chemistry and Life Sciences.

BSCI 312 Eukaryotic Genetics Laboratory (2) Three hours of laboratory and one hour of discussion/recitation per week. Prerequisite: BSCI222 or equivalent. Credit will be granted for only one of the following: BIOL322, ZOOL322, or BSCI312. Formerly ZOOL322. Experiments using lower and higher eukaryotes will be done by the students. Exercises will apply the genetic concepts underlying Mendelian and chromosomal theory of heredity; gene-environment interactions and the induction and detection of mutations. Major emphasis will be on the analysis and interpretation of data as well as clarity and completeness of the laboratory records.

BSCI 328 Special Topics in Entomology (1-4) Repeatable to 6 credits if content differs. Formerly ENTM328. Lectures, seminars, mini-courses and other special instruction in various entomological subjects.

BSCI 329 Instructional Assistance Practicum (1-3) Prerequisite: permission of department. Repeatable to 3 credits if content differs. Formerly ZOOL329. Students serve as instructional assistants in selected undergraduate biology courses. Roles and responsibilities are determined on a course- specific basis and approved by the College Undergraduate Program Committee. Course not acceptable toward major requirements in the College of Chemistry and Life Sciences.

BSCI 330 Cell Biology and Physiology (4) Three hours of lecture and three hours of laboratory per week. Prerequisite: grade of C(2.0) or better in {BSCI105 and (CHEM131 and CHEM132)}. Not open to students who have completed BSCI230. Credit will be granted for only one of the following: BSCI230 or BSCI330. Formerly BSCI230. Biochemical and physiological mechanisms underlying cellular function. Properties of cells which make life possible and mechanisms by which cells provide energy, reproduce, and regulate and integrate with each other and their environment.

BSCI 334 Mammalogy (3) Prerequisite: A grade of C (2.0) or better in {BSCI106 and BSCI207}. Credit will be granted for only one of the following: BSCI334 or BSCI338M. Formerly BSCI338M. Introduction to the biology of mammals, including evolution, physiological, and behavioral specializations.

BSCI 335 Mammalogy Laboratory (1) Prerequisite: A grade of C (2.0) in {BSCI106 and BSCI334 (formerly BSCI338M)}. Corequisite: BSCI334 (formerly BSCI338M). Credit will be granted for only one of the following: BSCI335 or BSCI338U. Formerly BSCI338U. Lab and field techniques for the study of mammals, focusing on their identification, anatomy, histology, spatial distribution, ecology, and behavior.

BSCI 337 Biology of Insects (4) Three hours of lecture and three hours of laboratory per week. Prerequisite: BSCI106 or {PLSC100 and PLSC101}; or permission of department. Credit will be granted for only one of the following: BSCI227 or BSCI337. Formerly BSCI227. An overview of the biology, evolution and diversity of insects and their relatives. Insect morphology, physiology, behavior and ecology; the impact of insects on humanity and the management of pest insect populations; assembly of an insect collection is required.

BSCI 338 Special Topics in Biology (1-4) Repeatable to 6 credits if content differs. Formerly ZOOL328. Lectures, seminars, mini-courses and other special instruction in various biological subjects.

BSCI 342 Biology of Reproduction (3) Prerequisite: BSCI105 or permission of department. Also offered as WMST326. Credit will be granted for only one of the following: BSCI342 or WMST326. Formerly ZOOL326. The biology of the reproductive system with emphasis on mammals and, in particular, on human reproduction. Hormone actions, sperm production, ovulation, sexual differentiation, sexual behavior, contraception, pregnancy, lactation, maternal behavior, and menopause.

BSCI 348 Special Topics in Cell Biology and Molecular Genetics (1-4) Formerly MICB388. Presentation and discussion of special subjects in the field of cell biology and molecular genetics. A maximum of three credit hours of BSCI 348 may be applied to major.

BSCI 360 Principles of Animal Behavior (3) Two hours of lecture and one hour of discussion/recitation per week. Prerequisites: BSCI105 and BSCI106 and BSCI222. Formerly ZOOL360. Study of animal behavior with emphasis on its evolution and function. Topics include genetic basis of behavior, communication, aggression, foraging, cooperation, mate selection, and relevance for conservation.

BSCI 361 Principles of Ecology (4) Three hours of lecture and one hour of discussion/recitation per week. Prerequisites: BSCI106 and (MATH140 or MATH220). Formerly ZOOL328N. Basic principles of population, community, and ecosystem ecology. Use of these principles to predict possible consequences of human-caused changes in the environment and to understand the level of uncertainty of those predictions.

BSCI 362 Ecology of Marsh and Dune Vegetation (2) Prerequisite: BSCI106. Formerly PBIO455. An examination of the biology of higher plants in dune and marsh ecosystems.

BSCI 363 The Biology of Conservation and Extinction (3) Prerequisite: BSCI106. Formerly ZOOL312. Ecology, evolutionary biology, and paleontology will be applied to the study of conservation, species invasions, and extinction.

BSCI 366 Biodiversity Issues in Conservation Management (3) Prerequisite: BSCI224 or BSCI225 or BSCI227 or permission of department. Formerly ENTM313. How biological diversity affects the stability and economic viability of agriculture, urban landscapes, and other managed resources and what actions can be taken to reduce losses.

BSCI 370 Principles of Evolution (3) Prerequisite: BSCI106. Formerly ZOOL328Q. Understanding evolutionary processes in a natural and human environment, including adaption; DNA sequence, protein, and genome evolution; evolution of developmental mechanisms; mechanisms of evolutionary change (mutation, natural selection, drift);

epidemiology; coevolution and biological control; speciation; comparative methods; extinction and conservation; human evolution.

BSCI 373 Natural History of the Chesapeake Bay (3) Three lectures per week and at least one Saturday field trip. Prerequisite: a course in biological sciences or permission of department. Consideration of the major groups of organisms associated with the Chesapeake Bay and current issues that determine humans' present and future uses for the Chesapeake and its biota.

BSCI 374 Chesapeake Bay Laboratory (2) One hour of lecture, two hours of laboratory, and eight hours of fieldwork per week. Pre- or corequisite: BSCI373. Formerly ZOOL382. A laboratory and field experience of the watershed and Chesapeake Bay biota. Laboratories will be used to identify the biota collected by students on Thursday and Saturday field trips to a wide variety of collecting sites available along the 200 mile length of the Chesapeake Bay.

BSCI 375 Biological Oceanography (3) Prerequisite: BSCI106. Formerly ZOOL375. Fundamentals of biological processes in the world's oceans; emphasizes ecology of marine organisms and how ocean chemistry and ocean circulation influence biological processes such as production, dispersal, and food chain dynamics.

BSCI 378H Cell Biology and Molecular Genetics Department Honors Seminar (1) Repeatable to 6 credits. Formerly MICB388H. Required seminar for all students participating in departmental honors research program.

BSCI 379 Cell Biology and Molecular Genetics Department Research (1-3) Prerequisite: permission of department Formerly MICB399/PBIO399. This course is arranged to provide qualified majors an opportunity to pursue research problems under the supervision of a member of the department.

BSCI 379H Cell Biology and Molecular Genetics Department Honors Research (1-4) Prerequisite: admission to departmental honors program. Repeatable to 8 credits if content differs. Formerly MICB379. Student should consult program guidelines. Research project carried out under guidance of faculty advisor.

BSCI 380 Bioinformatics and Integrated Genomics (4) Three hours of lecture and three hours of laboratory per week. Prerequisites: A grade of C (2.0) or better is required in (BSCI106 and BSCI222 and {MATH141 or MATH221}). Recommended: BSCI370. Credit will be granted for only one of the following: BSCI348S or BSCI380. Formerly BSCI348S. Computational methods for the study of biological sequence data in comparative biology and evolution. Analysis of genome content and organization. Database searching, pairwise and multiple sequence alignment, phylogenetic methods, pattern recognition, and functional inference. Functional and comparative genomics approaches.

BSCI 389 Entomology Department Research (1-2) Prerequisite: BSCI227/ENTM205 or permission of department. Formerly ENTM399. Credit to be determined by the department. Should be taken during the junior year. Investigations of assigned entomological problems. No more than 4 credit hours of BSCI389 may be applied to the 120 credit hours needed for the Bachelor's degree.

BSCI 389H Entomology Department Honors Research (1-2)

BSCI 392 Biology of Extinct Animals (3) Prerequisite: BSCI106. Credit will be granted for only one of the following: BSCI392 or ZOOL396. Formerly ZOOL396. A survey of extinct animals that have few, if any, direct living descendants. The principles governing the functional design of animals will be used to infer life styles for extinct, and frequently bizarre, organisms.

BSCI 393 Biology of Extinct Animals Laboratory (1) Three hours of laboratory per week. Pre- or corequisite: BSCI392. Formerly: BSCI338W/ZOOL328W. Credit will be granted for only one of the following: BSCI392 or BSCI338W or ZOOL328W. An overview of the techniques used in paleobiological reconstructions of extinct animals.

BSCI 394 Vertebrate Form and Function (3) Prerequisites: BSCI105 and BSCI106 and (BSCI224 or BSCI230). Formerly ZOOL328F. Comparative functional anatomy of vertebrates in the context of adaptation to their environments. The vertebrate body and its systems will be considered in terms of structure, physiology, evolution, and embryonic development.

BSCI 398H Biology Department Honors Seminar (1) Prerequisite: permission of department. Formerly ZOOL308H. Required seminar for all students participating in departmental honors research program.

BSCI 399 Biology Department Research (1-3) Prerequisite: minimum G.P.A. of 3.0 and permission of department. Repeatable to 8 credits if content differs. Formerly ZOOL319. Research and/or integrated reading in biology under the direction and close supervision of a member of the faculty.

BSCI 399H Biology Department Honors Research (1-2) Prerequisite: participation in the Biology Department Honors Program. Repeatable to 8 credits if content differs. Formerly ZOOL318H. A laboratory research problem; required each semester during honors participation and culminating in an honors thesis.

BSCI 410 Molecular Genetics (3) Prerequisites: BSCI222 (or equivalent) and CHEM233 or (CHEM231 and CHEM232). Formerly ZOOL446. An advanced genetics course emphasizing the molecular basis of gene structure and function in the context of modern approaches to the genetics of humans and model organisms.

BSCI 411 Plant Genetics and Molecular Biology (3) Prerequisite: BSCI222. Junior standing. Formerly PBIO405. The basic principles of genetic analysis and molecular biology of gene structure, expression, and manipulation.

BSCI 412 Microbial Genetics (4) Two hours of lecture and six hours of laboratory per week. Prerequisites: BSCI223 and BSCI222. Formerly MICB485. A laboratory/lecture based course that covers the fundamentals of mutation, mobile genetic elements and transmission genetics of microbial organisms using both classical and molecular approaches.

BSCI 413 Recombinant DNA (3) Prerequisites: (BSCI230 or BSCI223) and BSCI222. Formerly ZOOL452. An advanced course presenting the tools and procedures of genetic engineering. Theory and practical applications of recombinant DNA techniques to understanding eukaryotic gene structure and expression.

BSCI 414 Recombinant DNA Laboratory (3) Prerequisite: BSCI222. Formerly MICB453. An advanced course offering hands-on experience in performing recombinant DNA experiments. All current molecular biology techniques used for cloning prokaryotic genes, analyzing the gene products, and modifying the genes will be performed. Techniques include isolation of DNA, use of restriction enzymes; cloning procedures, PCR analysis, and Southern hybridizations. Lecture material focuses on interpretation of results generated in the laboratory.

BSCI 415 Molecular Genetics Laboratory (3) Six hours of laboratory per week. Pre- or corequisite: BSCI410. Junior standing. Credit will be granted for only one of the following: BSCI348G or BSCI415. Formerly BSCI348G. Problem solving laboratory organized around extended projects that employ different approaches toward linking gene and function.

BSCI 416 Biology of the Human Genome (3) Prerequisite: A grade of C (2.0) or better in BSCI222. Recommended: BSCI330 or BSCI230. Formerly ZOOL417. Approaches to human genetics and applications to biology and medicine: genetic basis of human disease, the human genome project, human genetic diversity and evolutionary genetics.

BSCI 417 Microbial Pathogenesis (3) Prerequisite: BSCI222 and BSCI223. Junior standing. Credit will be granted for only one of the following: BSCI348M or BSCI417. Formerly BSCI348M. Current research in microbial pathogenesis and the molecular and cellular basis of bacterial disease. Comprehensive overview of the molecular basis of pathogenesis with a focus on model microbial systems to illustrate mechanisms of disease pathogenesis. Topics covered: how microorganisms attach to and enter cells; how host cells are damaged by microbial products; how the host responds to invasion; and host-pathogen evolution.

BSCI 420 Cell Biology Lectures (3) Prerequisites: BSCI230/BSCI330 and BSCI222 and CHEM233. Credit will be granted for only one of the following: BSCI420 or BSCI421. Formerly ZOOL410. Molecular and biochemical bases of cellular organization and function in eukaryotes.

BSCI 421 Cell Biology (4) Three hours of lecture and four hours of laboratory per week. Prerequisites: BSCI230/BSCI330 and BSCI222 and CHEM233. Formerly: PBIO400 and ZOOL411. Credit will be granted for only one of the following: BSCI420 or BSCI421. Molecular and biochemical basis of cellular organization and function in eukaryotes.

BSCI 422 Principles of Immunology (3) Prerequisites: BSCI222 and BSCI223. Recommended: BSCI230. Junior or Senior standing. Formerly MICB454. The immune system in health and disease. Presentation and analysis of the cellular and molecular processes that comprise the immune system.

BSCI 423 Immunology Laboratory (2) Six hours of laboratory per week. Prerequisites: BSCI222 and BSCI223. Corequisite: BSCI422. Junior or senior standing. Formerly MICB455. Current techniques for assessment of immune status and evaluation of the immune response, including monoclonal antibody production, Western blotting, cytokine assays, ELISA and flow cytometry.

BSCI 424 Pathogenic Microbiology (4) Two hours of lecture and four hours of laboratory per week. Prerequisite: BSCI223. Formerly MICB440. The role of bacteria and fungi in the diseases of humans with emphasis upon the differentiation and culture of microorganisms, types of disease, modes of disease transmission, prophylactic, therapeutic, and epidemiological aspects.

BSCI 425 Epidemiology and Public Health (3) Two hours of lecture and one hour of discussion/recitation per week. Prerequisite: BSCI223. Formerly MICB420. History, characteristic features of epidemiology; the important responsibilities of public health; vital statistics.

BSCI 426 Membrane Biophysics (3) Prerequisites: BSCI230; and (PHYS122 or PHYS142) and (MATH140 or MATH220). Formerly ZOOL413. Quantitative aspects of biology and the use of mathematical descriptions of biological phenomena. The focus will be on membrane structure, transport, and bioenergetics.

BSCI 427 Principles of Microscopy (2) Prerequisite: BSCI421. Formerly PBIO430. An introduction to optical principles that underlie light and electron microscopic image formation. Brightfield, darkfield, phase contrast, differential interference contrast, fluorescence and polarized light microscopy. Comparison of light and electron microscopy. The application of these techniques to problems in biological research.

BSCI 430 Developmental Biology (3) Prerequisites: BSCI230/BSCI330 and BSCI222. Formerly ZOOL430. Structural, functional and regulatory events and mechanisms that operate during development to produce an integrated, multicellular organism composed of a multitude of differentiated cell types.

BSCI 433 Biology of Cancer (3) Prerequisites: (BSCI230/BSCI330 and BSCI222) or permission of department. Formerly ZOOL416. Causes and consequences of neoplastic transformations at the biochemical and cellular levels.

BSCI 434 Mammalian Histology (4) Two hours of lecture and six hours of laboratory per week. Prerequisites: BSCI230/BSCI330 and BSCI440; or permission of department. Formerly ZOOL495. A study of the microscopic anatomy, ultrastructure and histophysiology of tissues and organs of mammals.

BSCI 436 Drug Action and Design (3) Prerequisite: CHEM243 or permission of department. Junior standing. Formerly MICB443. Introductory pharmacology with an emphasis on "magic bullets", novel therapies, and drug design.

BSCI 437 General Virology (3) Prerequisite: BSCI222 or permission of department. Junior standing. Formerly MICB460. Discussion of the physical and chemical nature of viruses, virus cultivation and assay methods, virus replication, viral diseases with emphasis on the oncogenic viruses, viral genetics, and characteristics of the major virus groups.

BSCI 440 Mammalian Physiology (4) Three hours of lecture and two hours of discussion/recitation per week. Prerequisites: BSCI230/BSCI330 and CHEM233 or permission of department. Formerly ZOOL422. A study of the cardiovascular, hemopoietic, gastrointestinal, renal and respiratory systems. Chemical and endocrine regulation of physiological functions in mammals. Course does not count as an upper level lab for BIOL majors (see BSCI441).

BSCI 441 Mammalian Physiology Laboratory (2) Four hours of laboratory per week. Corequisite: BSCI440. Formerly ZOOL423. Laboratory exercises in experimental mammalian physiology.

BSCI 442 Plant Physiology (4) Three hours of lecture and three hours of laboratory per week. Prerequisites: BSCI105 and CHEM233 or (CHEM231 and CHEM232). Formerly PBIO420. A survey of the general physiological activities of plants.

BSCI 443 Microbial Physiology (3) Prerequisite: A grade of C (2.0) or better is required in BSCI223 and {BCHM461 or BCHM463}. Formerly MICB470. Microbial cellular and population growth. Fermentation metabolism, physiology of anaerobiosis, and energy conservation and transformation in bacterial membranes. Efficiency of energy utilization for growth. Membrane structure and transport. Bacterial chemotaxis. Regulation of bacterial chromosome replication, RNA and protein synthesis. Control of metabolic pathways.

BSCI 444 Neurophysiology Lectures (3) Prerequisites: BSCI230 and CHEM233 and PHYS122. Credit will be granted for only one of the following: BSCI444 or BSCI445. Formerly ZOOL420. The physiology of nerves, muscles, and sensory receptors and aspects of central nervous system physiology.

BSCI 445 Neurophysiology (4) Three hours of lecture and three hours of laboratory per week. Prerequisites: BSCI230 and CHEM233 and PHYS122. Credit will be granted for only one of the following: BSCI444 or BSCI445. Formerly ZOOL421. The physiology of nerves, muscles and sensory receptors and aspects of central nervous system physiology.

BSCI 446 Neural Systems (3) Prerequisite: BSCI230/BSCI330. Formerly ZOOL402. Neural development, followed by sensory, motor and integrative system organization in the central nervous system.

BSCI 447 General Endocrinology (3) Prerequisites: BSCI230/BSCI330 and CHEM233 and CHEM243. Formerly ZOOL426. Functions and the functioning of the endocrine glands of animals with special reference to the vertebrates.

BSCI 451 Physical Chemistry for Biologists (3) Prerequisite: BSCI230/BSCI330 or equivalent. Mechanistic and quantitative aspects of chemical and physical processes, including diffusion, ligand-receptor binding, DNA melting, sedimentation, redox reactions, kinetics, fluorescence, osmosis, and electrophoresis.

BSCI 453 Cellular Neurophysiology (3) Prerequisite: A grade of C (2.0) or better in ({BSCI230 or BSCI330} and {CHEM231 andCHEM232} and PHYS122). Credit will be granted for only one of the following: BSCI444 or BSCI445 or BSCI453. Formerly BSCI444. The cellular and molecular basis of nervous system function.

BSCI 454 Neurobiology Laboratory (1) Prerequisite: {BSCI230 or BSCI330} and {CHEM231 and CHEM232} and PHYS122; and pre- or corequisite: {BSCI453 or BSCI446}. Credit will be granted for only one of the following: BSCI445 or BSCI454. Formerly BSCI445. Grade of C (2.0) required in all course pre-requisites. Basic neuroanatomical techniques, intracellular and extracellular recordings of electrical potentials from nerve and muscle.

BSCI 460 Plant Ecology (3) Prerequisite: BSCI106. Formerly PBIO440. The dynamics of populations as affected by environmental factors with special emphasis on the structure and composition of natural plant communities, both terrestrial and aquatic.

BSCI 461 Plant Ecology Laboratory (2) Three hours of laboratory per week. Pre- or corequisite: BSCI460. Formerly PBIO441. Two or three field trips per semester. The application of field and experimental methods to the qualitative and quantitative study of vegetation and ecosystems.

BSCI 462 Population Ecology (3) Prerequisites: BSCI106 and MATH220. Formerly ZOOL470. Theory of population growth and regulation, life tables, and theory of competition and predation, evolution in ecological settings, community structure and dynamics.

BSCI 463 Laboratory and Field Ecology (2) Four hours of laboratory and field work per week. Pre- or corequisites: BSCI462 and a course in statistics. Formerly ZOOL471. Laboratory and field exercises involving problems of contemporary ecological interest; population density regulation, community structure, and spatial pattern diversity in both terrestrial and aquatic systems.

BSCI 464 Microbial Ecology (3) Prerequisites: BSCI223; and {CHEM241 and CHEM242 or CHEM243}. Formerly MICB480. Interaction of microorganisms with the environment, other microorganisms and with higher organisms. Roles of microorganisms in the biosphere. Microorganisms and current environmental problems.

BSCI 465 Behavioral Ecology (3) Prerequisites: BSCI106 and (BSCI222 or BSCI224). Formerly ZOOL465. How natural and social environments shape individual behavior. The influence of evolution on patterns of individual adaptation. Use of the evolutionary paradigm to investigate specific problems in animal and human behavior.

BSCI 467 Freshwater Biology (4) Three hours of lecture and three hours of laboratory per week. Prerequisite: BSCI227 or permission of department. Formerly ENTM482. Biology and ecology of freshwater invertebrates in lotic and lentic habitats, their adaptation to aquatic life, their function in aquatic ecosystems, and their relationship to environmental deterioration. Laboratory will include field trips, demonstrations, and identifications.

BSCI 471 Molecular Evolution (3) Prerequisite: BSCI222 or permission of department. Formerly ZOOL441. Patterns of DNA sequence variation within and between species, caused by nucleotide changes and the movement of transposable elements. Theories of molecular evolution, such as the neutral theory. Molecular clock' hypothesis: its importance as a practical empirical tool in molecular genetics and systematics and its theoretical foundation.

BSCI 472 Evolutionary Biology of Plants (3) Prerequisites: BSCI106 and BSCI222. Formerly PBIO445. Evolution in plant populations. The pace, pattern, and mechanisms of evolution will be discussed within a genetic and ecological framework. Some emphasis will be placed on processes that are unique to the evolution of plants.

BSCI 473 Marine Ecology (3) Prerequisite: BSCI224. Formerly ZOOL473. Courses in evolution and animal behavior are strongly recommended. A detailed analysis of the evolutionary ecology of marine invertebrates; emphasis on testing of theories and on current literature.

BSCI 474 Mathematical Biology (4) Three hours of lecture and three hours of laboratory per week. Prerequisites: MATH220 and MATH221. Formerly ZOOL425. Mathematical methods for analyzing deterministic and stochastic biological processes from a variety of areas (including population and evolutionary biology, neurobiology, physiology and morphogenesis). Qualitative aspects of dynamical systems which are usually given as difference or differential equations. The computer program Mathematica will be used to obtain the numerical solutions of these equations.

BSCI 480 Arthropod Form and Function (4) Three hours of lecture and three hours of laboratory per week. Prerequisite: BSCI227 or permission of department. Formerly ENTM423. Survey of the morphological, systematic and physiological diversity of the phylum Arthropoda.

BSCI 481 Insect Diversity and Classification (4) One hour of lecture and six hours of laboratory per week. Prerequisite: BSCI227 or permission of department. Formerly ENTM424. The techniques of collecting insects in the field and their classification into the latest hierarchical scheme. Field trips will visit habitats throughout the state. An insect collection is required.

BSCI 483 Medical and Veterinary Entomology (4) Three hours of lecture and two hours of laboratory per week. Prerequisite: BSCI227 or permission of department. Formerly ENTM472. A study of the morphology, taxonomy, biology and control of the arthropod parasites and disease vectors of man and animals. The ecology and behavior of vectors in relation to disease transmission will be emphasized.

BSCI 485 Protozoology (4) Two hours of lecture and six hours of laboratory. Prerequisite: one year of biology. Formerly ZOOL472. Basic conceptual treatment of free-living and parasitic protozoan functional morphology, life history, and systematics. The laboratory will stress observations of protozoa, living and stained, collected from diverse habits.

BSCI 488 Summer Biology Institutes (1-8) Prerequisite: permission of department. Formerly: BIOL488, BIOL489, and BIOL490. Repeatable to 12 credits if content differs.

BSCI 493 Medicinal and Poisonous Plants (3) Two hours of lecture and two hours of discussion/recitation per week. Prerequisites: BSCI105 and CHEM233 or 4 credit hours of biological sciences. Formerly PBIO485. A study of plants important to humans that have medicinal or poisonous properties. Emphasis on plant source, plant description, the active agent and its beneficial or detrimental physiological action and effects.

BSCI 494 Animal-Plant Interactions (3) Prerequisites: BSCI106 and (BSCI227, or BSCI224, or permission of department). Credit will be granted for only one of the following: BSCI494 or ENTM400. Formerly ENTM400. Theoretical, conceptual and applied aspects of the ecological interactions between plants and animals.

BSCI 497 Insect Pests of Ornamentals and Turf (4) Three hours of lecture and three hours of laboratory per week. Prerequisite: BSCI227 or permission of instructor. Also offered as ENTM497. Credit will be granted for only one of the following: BSCI497, ENTM453, or ENTM497. Formerly ENTM453. The recognition, biology and management of insects and mites injurious to ornamental shrubs, trees, greenhouse crops, and turf. Emphasis on Integrated Pest Management (IPM).

BSOS -- Behavioral and Social Sciences

BSOS 181 Civicus Student and the University (1) Open to Civicus students only. Freshman standing. Knowledge and skills designed to utilize CIVICUS to enhance the college experience and preparation for civic engagement.

BSOS 182 Civicus and Service-Learning (1) Prerequisite: BSOS181, and BSOS191. Corequisite: SOCY105. Open only to Civicus students. Students will examine domestic societal issues and their national, regional, and local dimensions from political, economic, and policy perspectives. Students will work with local direct service non-profit organizations.

BSOS 188 Selected Topics in the Behavioral and Social Sciences (1-3) Repeatable to 6 credits if content differs. Not open to students who have completed EDCP108P. Credit will be granted for only one of the following: EDCP108O or BSOS188A. Introductory selected topics course dealing with interdisciplinary issues related to the social sciences.

BSOS 191 Introduction to Civicus (3) Open to Civicus students only. 3 semester hours. An introduction to the social and historical foundations of a civil society. An examination of the roles of individuals, groups, social institutions and community services.

BSOS 288 Special Topics in Behavioral and Social Sciences (1-3) Repeatable to 6 credits if content differs.

Introductory special topics course focusing on an interdisciplinary topic related to behavioral and social sciences.

BSOS 301 Leadership in a Multicultural Society (3) Prerequisites: SOCY105, BSOS181,and BSOS191. Sophomore standing. A study and application of skills, historical context, theories, and concepts for constructive leadership in a pluralistic, multicultural, and diverse society. Social science methodologies and theories will provide the structure for the study of contemporary social problems, civil society issues, and leadership practices.

BSOS 302 Civicus Capstone (3) Prerequisite: BSOS301. Sophomore standing. Capstone course required for CIVICUS citation. Supervised internship, community service, or research project on civil society topic. Application and continued study of skills and concepts, grounded in the social sciences, relevant to understanding and effectively dealing with contemporary social issues.

BSOS 308 Contemporary Issues: Interdisciplinary Approaches (3) Repeatable to 6 credits if content differs. An interdisciplinary analysis of current public policy issues of international, national and community import. Senior standing recommended.

BSOS 309 Civicus Seminar (1) Repeatable to 5 credits if content differs. Review and analysis of contemporary social issues.

BSOS 330 Terrorist Motivations and Behaviors (3) Restricted to students admitted into the Terrorism Studies Minor Program. An exploration of theories explaining the formation of terrorist groups and the motivations behind terrorist behavior, building upon theories from social psychology, sociology, political science, criminology, and history. Examination of historical examples as well as current examples of terrorist groups operating throughout the world.

BSOS 331 Response to Terrorism (3) Restricted to students enrolled in the Terrorism Studies Minor Program. Examines the impact of terrorism on groups and individuals. Also, explores how communities have prepared and ideally should prepare in the face of potential threats. Material is drawn from other disciplines such as; anthropology, criminology, economics, history, political science, social psychology, and sociology.

BSOS 332 The Practice of Terrorism Studies (5) Prerequisite: BSOS330 and BSOS331. Restricted to students enrolled in the Terrorism Studies Minor Program. Serves as the capstone for the Terrorism Studies Minor Program. Students complete an approved internship or conduct a relevant, original research project and meet regularly with an instructor to learn and apply academic and professional analytical tools relevant to the study of terrorism.

BSOS 333 Information Technology & Society (3) Also offered as GVPT333. Credit will be granted for only one of the following: BSOS333 or GVPT333. Multi-disciplinary course utilizes a collaborative research model approach to focus on the influences of information and communication technologies on the way we live, work, learn, and relate to each other and to our community. Given the collaborative nature of the course, students may not drop after the first four weeks of class.

BSOS 386 Experiential Learning (3-6) Prerequisite: permission of department. Junior standing.

BSOS 388 Behavioral and Social Sciences Special Topics (1-3) Repeatable to 6 credits if content differs. Advanced special topics course focusing on an interdisciplinary topic related to the Behavioral and Social Sciences.

BSOS 399 Directed Study in Behavioral and Social Sciences (1-6) Prerequisite: permission of department. Guidance for the advanced student capable of interdisciplinary study on special projects under the supervision of the Assistant Dean for Student Affairs.

CCJS -- Criminology and Criminal Justice

CCJS 100 Introduction to Criminal Justice (3) Formerly CJUS100. Introduction to the administration of criminal justice in a democratic society, with emphasis on the theoretical and historical development of law enforcement. The principles of organization and administration for law enforcement; functions and specific activities; planning and research; public relations; personnel and training; inspection and control; direction; policy formulation.

CCJS 105 Introduction to Criminology (3) Formerly CRIM220. Criminal behavior and the methods of its study; causation; typologies of criminal acts and offenders; punishment, correction and incapacitation; prevention of crime.

CCJS 188 Topics in Criminology and Criminal Justice (3) Prerequisite: CCJS100 or CCJS105. Repeatable to 6 credits if content differs. Contemporary and emerging crimes and the response to them by criminal justice agencies. Emphasis is on the emergence of new forms of crimes or criminals.

CCJS 200 Statistics for Criminology and Criminal Justice (3) Two hours of lecture and one hour of discussion/recitation per week. Prerequisites: CCJS100 or CCJS105, and MATH111 with a grade of C or higher. Credit will be granted for only one of the following: BIOM301, BMGT230, ECON321, EDMS451, GEOG305, GVPT422, PSYC200, and SOCY201. Introduction to descriptive and inferential statistics, graphical techniques, and the computer analysis of criminology and criminal justice data. Basic procedures of hypothesis testing, correlation and regression analysis, and the analysis of continuous and binary dependent variables. Emphasis upon the examination of research problems and issues in criminology and criminal justice.

CCJS 230 Criminal Law in Action (3) Prerequisite: CCJS100. Law as one of the methods of social control. Criminal law: its nature, sources and types; theories and historical developments. Behavioral and legal aspects of criminal acts. Classification and analysis of selected criminal offenses.

CCJS 234 Law of Criminal Investigation (3) Prerequisite: CCJS100 and CCJS230. General principles and theories of criminal procedure. Due process. Arrest, search and seizure. Recent developments. Study and evaluation of evidence and proof.

CCJS 288 Special Topics in Law and Justice (3) Prerequisites: CCJS105 and CCJS230. Repeatable to 6 credits if content differs. An analysis of recent developments in criminal law and their implications for criminal justice systems and research. Focus will be on Supreme Court decisions and legislative initiatives.

CCJS 300 Criminological and Criminal Justice Research Methods (3) Prerequisites: CCJS100 and CCJS105; and one of the following: CCJS200 or SOCY201 or PSYC200 or ECON321 or BMGT230. Introduction to the formulation of research questions covering crime and justice, research designs, data collection, and interpretation and reporting in criminological and justice-system settings.

CCJS 310 Criminal Investigations (3) Prerequisite: CCJS100 and CCJS230. An introduction to modern methods used in detection, investigation, and solution of crime. Students will be taught basic and advanced investigative techniques utilized by law enforcement agencies. Analysis of actual cases will be used to demonstrate practical uses of these techniques.

CCJS 320 Introduction to Criminalistics (3) Prerequisite: CCJS100 and CCJS230. An introduction to modern methods used in the detection, investigation and solution of crimes. Practical analysis of evidence in a crime laboratory, including fingerprints and other impressions, firearms ID and ballistics, hairs and fibers, document examination, and use of polygraph.

CCJS 330 Contemporary Criminological Issues (3) Prerequisite: CCJS100 and CCJS105. Topics may include career criminals, prison overcrowding, prediction, ecological studies of crimes, family and delinquency, entrepreneurship in criminal justice and criminology, and similar criminological problems.

CCJS 331 Contemporary Legal Policy Issues (3) Prerequisite: CCJS100 and CCJS230. In-depth examination of selected topics. Criminal responsibility. Socio-legal policy alternatives with regard to deviance. Law enforcement procedures for civil law and similar legal problems. Admissibility of evidence. Representation. Indigent's right to counsel.

CCJS 332 Major Transitions: From Undergraduate to Professional (1) Junior standing. For CCJS majors only. This course is designed to assist criminology and criminal justice students explore career opportunities. Topics will include: graduate school, law school, career opportunities in federal, state, local, and public agencies, resume writing, and internships.

CCJS 340 Concepts of Law Enforcement Administration (3) Prerequisite: CCJS100 or equivalent. An introduction to concepts of organization and management as these relate to law enforcement. Principles of structure, process, policy and procedure, communication and authority, division of work and organizational controls. Human element in the organization. Informal interaction and bureaucracy.

CCJS 350 Juvenile Delinquency (3) Prerequisite: CCJS105. Juvenile delinquency in relation to the general problem of crime; analysis of factors underlying juvenile delinquency; treatment and prevention; organization and social responsibility of law enforcement.

CCJS 352 Drugs and Crime (3) Prerequisite: CCJS100. An analysis of the role of criminal justice in the control of drug use and abuse.

CCJS 357 Industrial and Retail Security Administration (3) Prerequisite: CCJS100 or permission of department. The origins of contemporary private security systems. Organization and management of industrial and retail protective units.

CCJS 359 Field Training in Criminology and Corrections (1-6) Prerequisite: six credits in criminology and permission of department. Repeatable to 6 credits. Supervised field training in public or private social agencies. Group meetings, individual conferences and written program reports.

CCJS 360 Victimology (3) Prerequisite: CCJS105. Overview of the history and theory of victimology. Analysis of victimization patterns with special emphasis on types of victims and crimes. The interaction between victims of crime and the criminal justice system with respect to the role of the victim and the services offered to the victim.

CCJS 370 Race, Crime and Criminal Justice (3) Prerequisite: CCJS100 or equivalent. Role and treatment of racial/ethnic minorities in the criminal justice system. Course will provide students with historical and theoretical framework for understanding this dynamic.

CCJS 386 Experiential Learning (3-6) Prerequisite: permission of department. Junior standing.

CCJS 388 Independent Reading Course in Criminology and Criminal Justice (3) Prerequisites: CCJS100 and CCJS105. For honor students only. Designed for the needs of honor students in criminology and criminal justice.

CCJS 389 Independent Research in Criminology and Criminal Justice (3) Prerequisite: CCJS105. For honor students only. Designed for the needs of honor students in criminology and criminal justice.

CCJS 398 Law Enforcement Field Training (1-6) Prerequisite: 6 credits of CCJS; and permission of department. Repeatable to 6 credits. Supervised, structured and focused field training in law enforcement agencies.

CCJS 399 Independent Study in Criminology and Criminal Justice (1-3) Prerequisites: 12 credits in criminology and criminal justice and permission of department. Repeatable to 6 credits. Integrated reading or research under direction and supervision of a faculty member.

CCJS 400 Criminal Courts (3) Prerequisites: CCJS100 or permission of department; and CCJS300. Criminal courts in the United States at all levels; judges, prosecutors, defenders, clerks, court administrators, and the nature of their jobs; problems facing courts and prosecutors today and problems of administration; reforms.

CCJS 432 Law of Corrections (3) Prerequisites: CCJS100, CCJS105, CCJS230, and CCJS300. A review of the law of criminal corrections from sentencing to final release or release on parole. Probation, punishments, special treatments for special offenders, parole and pardon, and the prisoner's civil rights are also examined.

CCJS 444 Advanced Law Enforcement Administration (3) Prerequisites: CCJS100 and CCJS340. The structuring of manpower, material, and systems to accomplish the major goals of social control. Personnel and systems management. Political controls and limitations on authority and jurisdiction.

CCJS 451 Crime and Delinquency Prevention (3) Prerequisites: CCJS105 or CCJS350 or permission of department; and CCJS300. Methods and programs in prevention of crime and delinquency.

CCJS 452 Treatment of Criminals and Delinquents (3) Prerequisites: CCJS105 or CCJS350 or permission of department; and CCJS300. Processes and methods used to modify criminal and delinquent behavior.

CCJS 453 White Collar and Organized Crime (3) Prerequisites: CCJS105 or CCJS350; and CCJS300. Definition, detection, prosecution, sentencing and impact of white collar and organized crime. Special consideration given to the role of federal law and enforcement practices.

CCJS 454 Contemporary Criminological Theory (3) Prerequisites: CCJS105; and CCJS300; and CCJS350. Brief historical overview of criminological theory up to the 50's. Deviance. Labeling. Typologies. Most recent research in criminalistic subcultures and middle class delinquency. Recent proposals for "decriminalization".

CCJS 455 Dynamics of Planned Change in Criminal Justice I (3) Prerequisite: CCJS300 and permission of department. An examination of conceptual and practical issues related to planned change in criminal justice. Emphasis on the development of innovative ideas using a research and development approach to change.

CCJS 456 Dynamics of Planned Change in Criminal Justice II (3) Prerequisite: CCJS455 or permission of department. An examination of conceptual and practical issues related to planned change in criminal justice. Emphasis on change strategies and tactics which are appropriate for criminal justice personnel in entry level positions.

CCJS 457 Comparative Criminology and Criminal Justice (3) Prerequisites: CCJS105 or CCJS350; and CCJS300. Comparison of law and criminal justice systems in different countries. Special emphasis on the methods of comparative legal analysis, international cooperation in criminal justice, and crime and development.

CCJS 461 Psychology of Criminal Behavior (3) Prerequisites: CCJS105 or equivalent; and CCJS300; and PSYC330 or PSYC353. Biological, environmental, and personality factors which influence criminal behaviors. Biophysiology and crime, stress and crime, maladjustment patterns, psychoses, personality disorders, aggression and violent crime, sex-motivated crime and sexual deviations, alcohol and drug abuse, and criminal behavior.

CCJS 462 Special Problems in Security Administration (3) Prerequisites: CCJS300 and CCJS357. An advanced course for students desiring to focus on specific concerns in the study of private security organizations; business intelligence and espionage; vulnerability and criticality analyses in physical security; transportation, banking, hospital and military security problems; uniformed security forces; national defense information; and others.

CCJS 498 Selected Topics in Criminology and Criminal Justice (3) Repeatable to 6 credits if content differs. Topics of special interest to advanced undergraduates in criminology and criminal justice. Offered in response to student request and faculty interest.

CHEM -- Chemistry

CHEM 104 Fundamentals of Organic and Biochemistry (4) Three hours of lecture, three hours of laboratory, and one hour of discussion/recitation per week. Prerequisite: CHEM103 or CHEM131/132. Credit will be granted for only one of the following: CHEM104 or CHEM231/232 or CHEM233 or CHEM237. Intended for students whose curricula require one year of chemistry. Students requiring two or more years of chemistry should register for CHEM233 or CHEM237. The chemistry of carbon: aliphatic compounds, aromatic compounds, stereochemistry, halides, amines, and amides, acids, esters, carbohydrates, and natural products.

CHEM 131 Chemistry I - Fundamentals of General Chemistry (3) Three hours of lecture and one hour of discussion/recitation per week. CORE Physical Science Lab (PL) course only when taken concurrently wit CHEM 132. Prerequisite: Math eligibility of MATH111 or higher. Corequisite: CHEM132. Credit will be granted for only one of the following: CHEM103, CHEM131, CHEM135, CHEM143 or CHEM146. Formerly CHEM103. An overview of the Periodic Table, inorganic substances, ionic and covalent bonding, bulk properties of materials, chemical equilibrium, and quantitative chemistry. CHEM131 is the first course in a four-semester sequence for students majoring in the sciences, other than Chemistry and Biochemistry majors.

CHEM 132 General Chemistry I Laboratory (1) Three hours of laboratory per week. CORE Physical Science Lab (PL) course only when taken concurrently with CHEM 131. Corequisite: CHEM131. Credit will be granted for only one of the following: CHEM103, CHEM132, CHEM136, CHEM143 or CHEM147. Formerly CHEM103. Introduction to the quanitification of chemical substances, including the concept of the mole and chemical stoichiometry. Additional work involves the synthesis of ionic substances and their qualitative characterization. Must be taken concurrently with CHEM131.

CHEM 135 General Chemistry for Engineers (3) Three hours of lecture and one hour of discussion/recitation per week. Pre- or corequisite: MATH115. Not open to students who have completed CHEM103, CHEM113, CHEM143, or CHEM153. Credit will be granted for only one of the following: CHEM103, CHEM113, CHEM131, CHEM135, CHEM143, OR CHEM153. The nature and composition of matter, solutions, chemical reactions, equilibria, and electrochemistry, with applications to various fields of engineering.

CHEM 136 General Chemistry Laboratory for Engineers (1) Three hours of laboratory per week. Pre- or corequisite: CHEM135. For ENGR majors only. A laboratory course for engineering majors intending to take CHEM231 and CHEM232.

CHEM 146 Principles of General Chemistry (3) Three hours of lecture and one hour of discussion/recitation per week. Prerequisite: Placement in MATH115 or higher. Corequisite: CHEM147. For CHEM and BCHM majors only. Credit will be granted for only one of the following: CHEM103, CHEM131, CHEM135, CHEM143 or CHEM146. Formerly CHEM143. An overview of the Periodic Table, inorganic substances, ionic and covalent bonding, bulk properties of materials, chemical equilibrium, and quantitative chemistry. CHEM146 is the first course in a four-semester sequence for Chemistry and Biochemistry majors.

CHEM 147 Principles of Chemistry Laboratory (1) Four hours of laboratory per week. Corequisite: CHEM146. For CHEM and BCHM majors only. Credit will be granted for only one of the following: CHEM103, CHEM132, CHEM136, CHEM143 or CHEM147. Formerly CHEM143. Introduction to the synthesis and characterization of inorganic substances. Must be taken concurrently with CHEM146.

CHEM 231 Organic Chemistry I (3) Three hours of lecture and one hour of discussion/recitation per week. Prerequisite: {CHEM131 and CHEM132} or {CHEM113 or CHEM153} or {CHEM135 and CHEM136} or {CHEM146 and CHEM147}. A grade of C or better in the prerequisite is required of Life Science majors and recommended for all students. Not open to students who have completed CHEM233 or CHEM237. Credit will be granted for only one of the following: CHEM104, CHEM231, CHEM233 or CHEM237. Formerly CHEM233. The chemistry of carbon: aliphatic compounds, aromatic compounds, stereochemistry, arenes, halides, alcohols, esters and spectroscopy.

CHEM 232 Organic Chemistry Laboratory I (1) Prerequisite: {CHEM131 and CHEM132} or {CHEM113 or CHEM153} or {CHEM135 and CHEM136} or {CHEM146 and CHEM147}. A grade of C or better in the prerequisites is required for Life Science majors and recommended for all students. Corequisite: CHEM231. Not open to students who have completed CHEM104, CHEM233 or CHEM237. Credit will be granted for only one of the following: CHEM104, CHEM231, CHEM233 or CHEM237. Formerly CHEM233. Provides experience in developing some basic laboratory techniques, recrystallizaton, distillation, extraction, chromatography.

CHEM 237 Principles of Organic Chemistry I (4) Three hours of lecture and four hours of laboratory per week. Prerequisite: A grade of C or better in {CHEM131 and CHEM132} or {CHEM146 and CHEM147} or CHEM113 or CHEM133 or CHEM153 or permission of department is required for Life Science majors. For CHEM, BCHM, and ENCH majors only. Credit will be granted for only one of the following: CHEM233 or CHEM237. The chemistry of carbons: aliphatic compounds, aromatic compounds, stereochemistry, arenes, halides, alcohols, esters, and spectroscopy.

CHEM 241 Organic Chemistry II (3) Three hours of lecture and one hour of discussion/recitation per week. Prerequisite: {CHEM231 and CHEM232} or CHEM233 or CHEM237. A grade of C or better in the prerequisite is required for Life Science majors and recommended for all students. Not open to students who have completed CHEM243 or CHEM247. Credit will be granted for only one of the following: CHEM241, CHEM243 or CHEM247. Formerly CHEM243. A continuation of CHEM231 with emphasis on molecular structure; substitution reactions; carbonium ions; aromaticity; synthetic processes; macromolecules.

CHEM 242 Organic Chemistry Laboratory II (1) Prerequisite: {CHEM231 and CHEM232} or CHEM233 or CHEM237. A grade of C or better in the prerequisite is required for Life Science majors or recommended for all students. Corequisite: CHEM241. Not open to students who have completed CHEM243 or CHEM247. Formerly CHEM243. Synthetic organic chemistry through functional group manipulation, introduction to instrumentation essential to analysis and structure elucidation.

CHEM 247 Principles of Organic Chemistry II (4) Three hours of lecture and four hours of laboratory per week. Prerequisite: A grade of C or better in CHEM237 or permission of department. The "C" or better in the prerequisite is required for Life Science majors. For CHEM, BCHM, ENCH majors, and honors students only. Credit will be granted for only one of the following: CHEM243 or CHEM247. A continuation of CHEM237 with emphasis on molecular structure, substitution reactions; carbonium ions; aromaticity; synthetic processes; macromolecules.

CHEM 271 General Chemistry and Energetics (2) Two hours of lecture and one hour of discussion/recitation per week. Prerequisite: CHEM241 and CHEM242; or CHEM247. A grade of C or better in the prerequisites for Life Sciences majors and recommended for all students. Corequisite: CHEM272. Not open to students who have completed CHEM113. Credit will be granted for only one of the following: CHEM113, CHEM153, CHEM271 or CHEM276. Formerly CHEM113. An introduction to the physical aspects of chemistry; chemical kinetics, thermodynamics and electrochemistry in the context of current chemistry research.

CHEM 272 General Bioanalytical Chemistry Laboratory (2) One hour of lecture and three hours of laboratory per week. Prerequisite: CHEM241 and CHEM242; or CHEM247. A grade of C or better in the prerequisites is required for Life Sciences majors and recommended for all students. Corequisite: CHEM271. Credit will be granted for only one of the following: CHEM227, CHEM272 or CHEM277. An introduction to analytical chemistry with an emphasis on bio-analytical instrumentation and techniques.

CHEM 276 General Chemistry and Energetics - Majors (2) Two hours of lecture and one hour of discussion/recitation per week. Prerequisite: CHEM241 and CHEM242; or CHEM247. A grade of C or better in the prerequisite is required. Corequisite: CHEM277. For CHEM and BCHM majors only. Credit will be granted for only one of the following: CHEM113, CHEM153, CHEM 271 or CHEM276. Formerly CHEM153. An introduction to the physical aspects of chemistry for Biochemistry and Chemistry majors. Chemical kinetics, thermodynamics and electrochemistry in the context of current chemistry research.

CHEM 277 Fundamentals of Analytical and Bioanalytical Chemistry Laboratory (3) One hour of lecture and six hours of laboratory per week. Prerequisite: CHEM241 and CHEM242; or CHEM247. A grade of C or better in the prerequisite is required. Corequisite: CHEM276. For CHEM and BCHM majors only. Credit will be granted for only one of the following: CHEM153, CHEM227, CHEM272 or CHEM277. Formerly CHEM153. Quantitative analysis, inorganic analytical chemistry, and an introduction to bio-analytical instrumentation and techniques.

CHEM 386 Experiential Learning (3-6) Prerequisite: Learning Proposal approved by the Office of Experiential Learning Programs, faculty sponsor, and student's internship sponsor. Junior standing.

CHEM 395 Professional Issues in Chemistry and Biochemistry (1) Junior standing. For CHEM and BCHM majors only. Seminar on professional issues. Professional responsibilities, ethics, interview techniques, career opportunities, graduate/professional school, race and gender issues.

CHEM 398 Special Projects (2) Honors projects for undergraduate students.

CHEM 399 Introduction to Chemical Research (1-3) Prerequisite: permission of department. Junior standing. Repeatable to 6 credits. Basic (chemical) research conducted under the supervision of a faculty member.

CHEM 401 Inorganic Chemistry (3) Prerequisite: {CHEM241 and CHEM242} or CHEM243 or CHEM247. An overview of basic concepts of the electronic structure of the elements, chemical bonding and reactivity, from simple diatomic molecules to coordination compounds. These are viewed from simple (Lewis) to the most comprehensive molecular orbital theory. Symmetry and group theory are used throughout the course.

CHEM 403 Radiochemistry (3) Prerequisite: one year of college chemistry and one year of college physics. Radioactive decay; introduction to properties of atomic nuclei; nuclear processes in cosmology; chemical, biomedical and environmental applications of radioactivity; nuclear processes as chemical tools; interaction of radiation with matter.

CHEM 425 Instrumental Methods of Analysis (4) Two hours of lecture and six hours of laboratory per week. Prerequisite: {CHEM153 or CHEM227} or {CHEM271 and CHEM272} or {CHEM276 and CHEM277}. Modern instrumentation in analytical chemistry. Electronics, spectroscopy, chromatography and electrochemistry.

CHEM 441 Advanced Organic Chemistry (3) Prerequisite: CHEM481. Also offered as CHEM641. An advanced study of the compounds of carbon, with special emphasis on molecular orbital theory and organic reaction mechanisms.

CHEM 450 Ethics in Science and Engineering (3) Prerequisite: 8 credits laboratory science or permission of department. Ethical issues in science and their resolutions. Topics will be ethics and scientific truth, ethics and other scientists, and ethics and society.

CHEM 460 Structure Determination Using Spectroscopic Methods (3) Prerequisite: {CHEM243 or CHEM247} or {CHEM241 or CHEM242}. Formerly CHEM660. The use of infrared, ultraviolet-visible, proton and carbon-13 nuclear magnetic resonance and mass spectroscopy for structure determination in organic chemistry.

CHEM 474 Environmental Chemistry (3) Prerequisite: CHEM481 or equivalent. The sources of various elements and chemical reactions between them in the atmosphere and hydrosphere are treated. Causes and biological effects of air and water pollution by certain elements are discussed.

CHEM 481 Physical Chemistry I (3) Prerequisite: A grade of C or better in CHEM113, CHEM135, or CHEM153, or (CHEM271 and CHEM272), or (CHEM276 and CHEM277); and MATH141 and PHYS142. The "C" or better in prerequisites is required for Life Science majors. A course primarily for chemists and chemical engineers.

CHEM 482 Physical Chemistry II (3) Prerequisite: A Grade of C or better in CHEM481. The "C" or better is required for Life Science majors. A course primarily for chemists and chemical engineers.

CHEM 483 Physical Chemistry Laboratory I (2) One hour lecture-recitation and one three-hour laboratory period per week Corequisite: CHEM481. An introduction to the principles and application of quantitative techniques in physical chemical measurements. Experiments will be coordinated with topics in CHEM481.

CHEM 484 Physical Chemistry Laboratory II (2) One hour lecture-recitation and one three-hour laboratory period per week. Prerequisite: CHEM481 and CHEM483. Corequisite: CHEM482. A continuation of CHEM 483. Advanced quantitative techniques necessary in physical chemical measurements. Experiments will be coordinated with topics in CHEM 482.

CHEM 491 Advanced Organic Chemistry Laboratory (4) One hour of lecture and 10 hours of laboratory per week. Prerequisite: CHEM243. Formerly CHEM433 and CHEM443. Credit will be granted for only one of the following: CHEM433 and CHEM443 or CHEM491. Advanced synthetic techniques in organic chemistry with an emphasis on spectroscopy for structure determination.

CHEM 492 Advanced Inorganic Chemistry Laboratory (3) One hour of lecture and eight hours of laboratory per week. Corequisite: CHEM401. Synthetic and structural inorganic chemistry. Emphasis on spectroscopy methods for structure determination. Students complete an individual special project. (Designed to satisfy the university requirement for a Capstone course in chemistry.)

CHEM 493 Advanced Synthesis Laboratory (3) One hour of lecture and eight hours of laboratory per week. Prerequisite: {CHEM241 and 242} or CHEM243 or {CHEM247 and CHEM401}. A grade of C or better in the prerequisite is required for Life Science majors and recommended for all students. Formerly: CHEM491 and CHEM492. Credit will be granted for only one of the following: CHEM491 and CHEM492; or CHEM493. A course in advanced synthesis of organic and inorganic compounds.

CHEM 498 Special Topics in Chemistry (3) Three lectures or two lectures and one three-hour laboratory per week. Prerequisite varies with the nature of the topic being considered. Course may be repeated for credit if the subject matter is substantially different, but not more than three credits may be accepted in satisfaction of major supporting area requirements for chemistry majors.

CHIN -- Chinese

CHIN 101 Intensive Elementary Chinese I (6) Non-majors admitted only after a placement interview. Introduction to speaking, reading, and writing Chinese with an emphasis on mastering the essentials of pronunciation, basic characters and structural patterns.

CHIN 102 Elementary Spoken Chinese (3) Prerequisite: CHIN101 or equivalent and permission of department. Non-majors admitted only after a placement interview. Continued study of grammatical patterns and vocabulary buildup with particular emphasis on conversation. May be taken in conjunction with CHIN 103.

CHIN 103 Elementary Written Chinese (3) Prerequisite: CHIN101 or equivalent and permission of department. Non-majors admitted only after a placement interview. Continued study of grammatical patterns and buildup of vocabulary with particular emphasis on reading and writing. May be taken in conjunction with CHIN102.

CHIN 105 Elementary Chinese - Accelerated Track (3) Prerequisite: permission of department. Not open to students who have completed CHIN101, CHIN102, or CHIN103. Accelerated instruction in Mandarin Chinese at the elementary level for students with prior Chinese language background, either through home use or formal instruction.

CHIN 201 Intermediate Spoken Chinese I (3) Prerequisite: CHIN102 or equivalent and permission of department. Non-majors admitted only after a placement interview. Emphasis on development of conversational skills with vocabulary build-up and controlled conversation.

CHIN 202 Intermediate Written Chinese I (3) Prerequisite: CHIN103 or equivalent and permission of department. Non-majors admitted only after a placement interview. Reading and writing skills with emphasis on grammar and Chinese characters.

CHIN 203 Intermediate Spoken Chinese II (3) Prerequisite: CHIN201 or equivalent and permission of department. Non-majors admitted only after a placement interview. Continuation of CHIN201.

CHIN 204 Intermediate Written Chinese II (3) Prerequisite: CHIN202 or equivalent and permission of department.

Non-majors admitted only after a placement interview. Continuation of CHIN202.

CHIN 205 Intermediate Chinese - Accelerated Track (3) Prerequisite: permission of department. Not open to students who have completed CHIN201, CHIN202, CHIN203, or CHIN204. Accelerated instruction in Mandarin Chinese at the intermediate level for students with prior Chinese language background, either through home use or formal instruction.

CHIN 207 Linguistic Resources for Students of Chinese (3) Prerequisite: permission of department. Not open to students who have completed CHIN428, CHIN421 or CHIN422. Training in the use of Chinese dictionaries, introduction to the relationship between traditional and simplified Chinese characters, overview of the main regional variations of Mandarin, review of elementary grammar.

CHIN 213 Chinese Poetry into English: An Introduction (3) Issues in the intercultural and interlingual interpretation of foreign literature through the study of Western translations of and scholarship on selected Chinese poets. No knowledge of Chinese required.

CHIN 220 Beginning Chinese Calligraphy (3) Not open to students who have completed CHIN331. Credit will be granted for only one of the following: CHIN220 or CHIN331. Introduction to techniques, history, and culture of Chinese calligraphy. Extensive hands-on practice. Taught in English.

CHIN 301 Advanced Chinese I (3) Prerequisite: CHIN202 or equivalent. Non-majors admitted only after a placement interview. Readings in expository and fictional writing with conversation and composition.

CHIN 302 Advanced Chinese II (3) Prerequisite: CHIN301 or equivalent. Non-majors admitted only after a placement interview. Continuation of CHIN301.

CHIN 305 Life in China through TV Plays I (3) Prerequisite: CHIN203, CHIN204 or permission of department. Using authentic Chinese language material in short TV plays to learn about society and life in China.

CHIN 306 Life in China through TV Plays II (3) Prerequisite: CHIN305 or permission of department. Continuation of CHIN305 using authentic Chinese language material in TV plays to learn about society and life in China.

CHIN 313 Chinese Poetry and Prose in Translation (3) Writing of the major poets, essayists, and historians from the 10th century B.C. to the 12th century A.D. No knowledge of Chinese is required.

CHIN 314 Chinese Fiction and Drama in Translation (3) Representative short stories, novels, and plays from the third through the nineteenth centuries. No knowledge of Chinese is required.

CHIN 315 Modern Chinese Literature in Translation (3) Major works of fiction and drama from 1920 to the present read in the context of social and literary change. Emphasis on western and traditional Chinese influences on the writers and their works. No knowledge of Chinese required.

CHIN 316 Traditional Chinese Values (3) Classical Chinese thought and literature in English translation. Discussions will explore what these writings reflect about traditional Chinese ideas on morality and personal values -- how should a person live, and why? What do the main philosophical schools have to say about the question? Taught in English.

CHIN 321 Classical Chinese I (3) Prerequisite: CHIN207 or permission of department. Credit will be granted for only one of the following: CHIN321 or CHIN403. Formerly CHIN403. Introductory classical Chinese using literacy and historical sources in the original language.

CHIN 322 Classical Chinese II (3) Prerequisite: CHIN321, CHIN403, or permission of department. Credit will be granted for only one of the following: CHIN322 or CHIN404. Formerly CHIN404. Further classical studies by various writers from famous ancient philosophers to prominent scholars before the new culture movement.

CHIN 386 Experiential Learning (3-6) Prerequisite: Learning Proposal approved by the Office of Experiential Learning Programs, faculty sponsor, and student's internship sponsor. Junior standing.

CHIN 388 Topics in Chinese Literature in Translation (3) Repeatable to 6 credits if content differs. Analysis of significant themes and structures in Chinese literature. No knowledge of Chinese required.

CHIN 389 Language House Spring Colloquium (1) Prerequisite: Residence in Language House. Repeatable to 8 credits. For students residing in the Language House Immersion Program. Focuses on the development of skills in the target language and acquiring the cultural knowledge of the countries that speak the target language.

CHIN 401 Readings in Modern Chinese I (3) Prerequisite: CHIN302 or equivalent. Non-majors admitted only after a placement interview. Readings in history, politics, economics, sociology, and literature. Emphasis on wide-ranging, rapid reading, reinforced by conversations and compositions.

CHIN 402 Readings in Modern Chinese II (3) Prerequisite: CHIN401 or equivalent. Non-majors admitted only after a placement interview. Continuation of CHIN401.

CHIN 408 Selected Readings in Classical Chinese (3) Prerequisites: CHIN321 or CHIN403 at UMCP or pass a placement test offered by the Chinese Program; and must know Pinyin. Students who do not know Pinyin must learn it before the end of the first week of classes or they will be required to drop. Repeatable to 9 credits if content differs. Selected readings in Classical Chinese, including important representative works of history, poetry, and parallel prose. Close attention is paid to matters of grammar and phonology in the readings. Content will differ each time this course is offered.

CHIN 411 Business Chinese I (3) Prerequisite: CHIN402 or permission of department. Non-majors admitted only after a placement interview. Not open to students who have completed CHIN303. Conversation, reading, and writing applicable to Chinese business transactions, social meetings, and meetings with government organizations, plus background material in English on professional business practices and social customs associated with business.

CHIN 412 Business Chinese II (3) Prerequisite: CHIN411 or permission of department. Non-majors admitted only after a placement interview. Not open to students who have completed CHIN304. Continuation of CHIN411.

CHIN 413 Advanced Conversation and Composition (3) Prerequisite: CHIN402 or permission of department. Non-majors admitted only after a placement interview. Not open to students who have completed CHIN405. Practice in writing essays, letters, and reports on selected topics. Conversation directed toward everyday situations and topics related to life in China.

CHIN 415 Readings in Current Newspapers and Periodicals (3) Prerequisite: CHIN402 or equivalent. Non-majors admitted only after a placement interview. Reading of periodical literature on selected topics with discussions and essays in Chinese.

CHIN 418 Special Topics in Contemporary Chinese Fiction and Film (3) Prerequisite: permission of department. Repeatable to 12 credits if content differs. Various approaches to the most recent textual productions of China and Taiwan. Taught in Chinese.

CHIN 421 Sounds and Transcriptions of Mandarin Chinese (3) Production and recognition of Mandarin speech sounds and tones, their phonological patterns, comparison with English, and representation by the various Romanization systems.

CHIN 422 Advanced Chinese Grammar (3) Prerequisite: CHIN302, CHIN322, or permission of department. Chinese sentence patterns studied contrasted with English and in terms of current pedagogical as well as linguistic theories.

CHIN 423 Chinese Historical and Dialect Phonology (3) Prerequisite: CHIN302 or JAPN405. Formerly CHIN428B. The history and structure of the sounds of Chinese language, with emphasis on the Medieval formal phonological system and its relationship to Mandarin and other modern languages. Students are expected to have advanced knowledge of written Chinese graphs (may include Japanese kanji or Korean hanja).

CHIN 424 Linguistics of the Chinese Writing System (3) Prerequisite: CHIN302 or JAPN405. Recommended: CHIN423. Also offered as SLAA798A. Formerly CHIN428A. The history and structure of the Chinese writing system, with emphasis on its early development and place in the cognition of language. Students are expected to have advanced knowledge of written Chinese graphs (may include Japanese kanji or Korean hanja).

CHIN 428 Selected Topics in Chinese Linguistics (3) Prerequisite: permission of department. Sophomore standing. Repeatable to 12 credits if content differs. Undergraduate seminar in Chinese linguistics. Topics may include the ancient writing system, historical phonology, dialectology, prosody and rhyming, grammar and the history of the language as a whole. This course may be repeated with different content, and satisfies the linguistics requirement for the Chinese major. Students are expected to be in at least Third Year Chinese. Taught in English.

CHIN 431 Translation and Interpretation I (3) Prerequisite: CHIN302 or equivalent and permission of department. Theory and practice of Chinese/English translation and interpretation with emphasis on translation.

CHIN 432 Translation and Interpretation II (3) Prerequisite: CHIN402 or equivalent and permission of department. Workshop on Chinese/English translation and interpretation, with emphasis on seminar (consecutive) interpretation and introduction to conference (simultaneous) interpretation.

CHIN 441 Traditional Chinese Fiction (3) Prerequisite: permission of department. Major works of fiction from the 4th century tales of the marvelous through the 19th century Ching novel. Taught in Chinese.

CHIN 442 Modern Chinese Fiction (3) Prerequisite: permission of department. Examination, through selected texts, of the writer's role as shaper and reflector of the Republican and Communist revolutions. Taught in Chinese.

CHIN 499 Directed Study in Chinese (1-3) Prerequisite: permission of instructor. Repeatable to 6 credits if content differs. Readings in Chinese under faculty supervision.

CLAS -- Classics

CLAS 100 Classical Foundations (3) Aspects of the ancient world taught through the medium of influential classical texts.

CLAS 170 Greek and Roman Mythology (3) This course cannot be taken for language credit. This course is particularly recommended for students planning to major in foreign languages, English, history, the fine arts, or journalism. Taught in English.

CLAS 171 Classical Myths in Europe (1) Prerequisite: CLAS170. Freshman standing. The role which Classical Myths have played in the arts, architecture and politics of a major European city. This will only be offered through the study abroad program.

CLAS 270 Greek Literature in Translation (3) Selections in translation of Greek literature from Homer to Lucian, with special emphasis on epic and dramatic poetry. No knowledge of Greek or Latin is required.

CLAS 271 Roman Literature in Translation (3) Selections in translation of Latin literature to the time of Apuleius. Special emphasis will be placed on poetry of the Augustan Age. No knowledge of Latin is required.

CLAS 308 The Classics in Context (1-3) Three hours of lecture per week. Prerequisite: permission of department. Repeatable to 9 credits if content differs. A Study Abroad course which introduces students to the topography, archaeology and culture of the ancient Mediterranean world.

CLAS 309 Special Topics in Classical Literature (3) Repeatable to 9 credits if content differs. Readings in translation.

CLAS 310 Ancient Philosophy (3) Prerequisite: six credits in classics or philosophy. Credit will be granted for only one of the following: CLAS310 or PHIL310. The origins and development of philosophy and science in Ancient Greece, focusing on the pre-Socratics, Socrates, Plato and Aristotle.

CLAS 315 Greek and Roman Athletics (3) The origin and evolution of athletics in ancient Greece and Rome studied as recreation, as play, as education, as a profession and as mass entertainment.

CLAS 320 Women in Classical Antiquity (3) Also offered as WMST320. Credit will be granted for only one of the following: CLAS320 or WMST320. A study of women's image and reality in ancient Greek and Roman societies through an examination of literary, linguistic, historical, legal and artistic evidence; special emphasis in women's role in the family, views of female sexuality, and the place of women in creative art. Readings in primary sources in translation and modern critical writings.

CLAS 330 Ancient Greek Religion: Gods, Myths, Temples (3) Survey of Greek religious ideas and practices as they evolve from the Bronze Age to the early Christian period.

CLAS 331 Roman Religion: From Jupiter to Jesus (3) Formerly CLAS309J. Survey of the major institutions of Roman state and private religion and of the diverse religions, including Judaism and Christianity, practiced in the Roman empire.

CLAS 370 Classical Myths in America (3) Prerequisite: CLAS170. Sophomore standing. Credit will be granted for only one of the following: CLAS370 or HONR269W. Formerly HONR269W. The role which Greek and Roman

Myths have played in American culture and politics.

CLAS 372 Classical Epic (3) Introduction to major classical epic poems in translation.

CLAS 374 Greek Tragedy in Translation (3) Study and analysis of the tragedies of Aeschylus, Sophocles and Euripides with special attention to the concepts of character and of thought as conceived by Aristotle in The Poetics.

CLAS 375 Ancient Comedy (3) Representative plays by Aristophanes, Menander, Plautus and Terence in translation; examination of Greek tradition in Roman and postclassical periods.

CLAS 386 Experiential Learning (3-6) Prerequisite: Learning Proposal approved by the Office of Experiential Learning Programs, faculty sponsor, and student's internship sponsor. Junior standing.

CLAS 419 The Classical Tradition (3) Two hours of lecture and one hour of discussion/recitation per week. Repeatable to 9 credits if content differs. Credit will be granted for only one of the following: CLAS419 or CLAS420. Formerly CLAS420. Examination of the role of Greek and Roman civilization in shaping the arts and ideas of western culture.

CLAS 470 Approaches to Greek Mythology (3) Prerequisite: CLAS170 or permission of department. Ancient and modern approaches to understanding Greek myth as expression of human experience, including interpretations drawn from psychology, anthropology, and comparative mythology.

CLAS 488 Independent Study in Classical Civilization (3) Prerequisite: permission of department. Repeatable to 6 credits if content differs.

CLAS 495 Senior Thesis in Classics (3) Prerequisite: permission of department. Prior departmental approval of research topic is required. Available to all students who wish to pursue a specific research topic.

CLAS 499 Independent Study in Classical Languages and Literatures (1-3) Prerequisite: permission of department.

CMLT -- Comparative Literature

CMLT 214 Film Form and Culture (3) Introduction to film forms in international perspective. Emphasis on the techniques of film analysis, distinctions among film genres, and the history of cinema.

CMLT 235 Introduction to the Literatures of the African Diaspora (3) Credit will be granted for only one of the following: CMLT235 or ENGL235. Introduction to authors, periods, and genres reflecting the diversity of African and African Diaspora cultures.

CMLT 270 Global Literature and Social Change (3) Comparative study of literature through selected literary works from several non-Western cultures, viewed cross-culturally in light of particular social, political, and economic perspectives.

CMLT 275 World Literature by Women (3) Also offered as WMST275. Credit will be granted for only one of the following: CMLT275 or WMST275. Comparative study of selected works by women writers of several countries, exploring points of intersection and divergence in women's literary representations.

CMLT 277 Literatures of the Americas (3) Comparative study of several North, South, and Central American cultures with a focus on the specificities, similarities, and divergences of their literary and cultural texts.

CMLT 280 Film Art in a Global Society (3) Two hours of lecture and two hours of laboratory per week. Comparative study of a variety of film traditions from around the world, including cinema from Hollywood, Europe, Asia and developing countries, with a stress on different cultural contexts for film-making and viewing.

CMLT 291 International Perspectives on Lesbian and Gay Studies (3) Exploration of the construction and representation of sexualities in cultures around the globe, with particular emphasis on literature and media.

CMLT 298 Topics in Comparative Studies (3-6) Repeatable to 9 credits if content differs.

CMLT 386 Experiential Learning (3-6) Prerequisite: permission of department. Junior standing.

CMLT 415 The Hebrew Bible (3) A study of sources, development and literary types.

CMLT 469 The Continental Novel (3) The novel in translation from Stendhal through the existentialists, selected from literatures of France, Germany, Italy, Russia, and Spain.

CMLT 479 Major Contemporary Authors (3)

CMLT 488 Genres (3) Repeatable to 6 credits if content differs. A study of a recognized literary form, such as tragedy, film, satire, literary criticism, comedy, tragicomedy, etc.

CMLT 489 Major Writers (3) Each semester two major writers from different cultures and languages will be studied. Authors will be chosen on the basis of significant relationships of cultural and aesthetic contexts, analogies between their respective works, and the importance of each writer to his literary tradition.

CMLT 498 Selected Topics in Comparative Studies (3)

CMPS -- Computer, Mathematical and Physical Sciences

CMPS 181 At the Edge of Discovery with CMPS Scientists (1) Restricted to New CMPS students. This course will bring entering CMPS majors into direct contact with some of the most exciting scientific research problems today in the wide range of the disciplines in the college, through the eyes of the scientists who are on the front lines.

CMPS 299 Special Topics (.50-3) Prerequisite: By permission of the CMPS Dean's Office. For CMPS majors only. Repeatable to 8 credits if content differs.

CMPS 496 NASA Academy (4) Two hours of lecture and four hours of laboratory per week. Prerequisite: College Permission. Junior standing. Also offered as ENES496 or GEOG496. Credit will be granted for only one of the following: CMPS496, ENES496 or GEOG496. A ten-week resident summer institute at Goddard Space Flight Center for juniors, seniors and first-year graduate students interested in pursuing professional and leadership careers in aerospace-related fields. The national program includes research in a Goddard laboratory, field trips to NASA centers, and a combination of lectures and workshops on the mission, current activities and management of NASA. Students interested in the Academy will find information at http://www.nasa-academy.nasa.gov Application should be made by the end of January; sponsorship by an affiliated State Space Grant Consortium is customary, but not required.

CMPS 497 Experiential Learning (1-3) Prerequisite: Permission of CMPS Department. For CMPS majors only. This course is part of the experiential learning internship program, Corporate Scholars, set up by the college and industry. It offers students an opportunity to gain practical experience in their chosen career fields. Fall semester only.

CMSC -- Computer Science

CMSC 100 Bits and Bytes of Computer Science (1) For first time freshmen and first time transfer computer science majors. Students are introduced to the field (and disciplines) of computer science within a small classroom setting. They will learn to make a successful transition from high school to the university, while exploring study skills, student success plans and research opportunities.

CMSC 102 Introduction to Information Technology (3) For non-majors only. Not recommended for BMGT students. Not open to students who have completed CMSC114 or higher. Credit will be granted for only one of the following: CMSC102, CMSC132 or CMSC214. If CMSC102 is taken before CMSC132 or CMSC214, then credit will be granted for both. A historical and practical introduction to computer and network terminology, applications and concepts. Students will have hands-on experience with a variety of tools available to find and access information on the Internet, to exchange information between computers, and to perform basic web design. Students will explore applications (such as browsers and spreadsheets) as well as different computing environments (such as Windows and UNIX). There will be discussions of social, legal, and ethical issues related to technology.

CMSC 106 Introduction to C Programming (4) Three hours of lecture and two hours of laboratory per week. Prerequisite: permission of department. Pre- or corequisite: MATH140. Only for CMPS, ENCP and students with major code: 2299F. Not open to students who have completed CMSC114 or higher. Design and analysis of programs in C. An introduction to computing using structured programming concepts. For further information contact the Undergraduate Education Office, Computer Science Department.

CMSC 114 Computer Science I (4) Three hours of lecture and two hours of laboratory per week. Prerequisite: CMSC106 with a grade of C or better; and permission of department based on satisfactory performance on the department's placement exams. Corequisite: MATH141. Not open to students who have completed CMSC214 or higher. Credit will be granted for only one of the following: CMSC114 or CMSC113. With CMSC214, this course forms a one-year sequence for computer science majors. Introduction to UNIX. Procedural and data abstraction using C++. CMPS and Computer Engineering students will be given priority for registration until the first day of classes.

CMSC 122 Introduction to Computer Programming via the Web (3) Not open to students who have completed CMSC132 or higher. Credit will be granted for only one of the following: CMSC122 or CMSC198N. Formerly CMSC198N. Introduction to computer programming in the context of developing full featured dynamic web sites. Uses a problem solving approach to teach basics of program design and implementation using JavaScript; relates these skills to creation of dynamic web sites; then explores both the potential and limits of web-based information sources for use in research. Intended to help relate a student's major to these emerging technologies.

CMSC 131 Object-Oriented Programming I (4) Three hours of lecture and two hours of discussion/recitation per week. Corequisite: MATH140 and permission of department. Not open to students who have completed CMSC114. Introduction to programming and computer science. Emphasizes understanding and implementation of applications using object-oriented techniques. Develops skills such as program design and testing as well as implementation of programs using a graphical IDE. Programming done in Java.

CMSC 132 Object-Oriented Programming II (4) Three hours of lecture and two hours of discussion/recitation per week. Prerequisite: CMSC131 with a grade of C or better; or a score of 5 on the A Java AP exam; or a score of 4 or 5 on the AB Java AP exam; or permission of the department based on satisfactory performance on the department placement exam and permission of department. Corequisite: MATH141. Introduction to use of computers to solve problems using software engineering principles. Design, build, test, and debug medium -size software systems and learn to use relevant tools. Use object-oriented methods to create effective and efficient problem solutions. Use and implement application programming interfaces (APIs). Programming done in Java.

CMSC 198 Special Topics in Computer Science for Non-Majors (1-4) Repeatable to 6 credits if content differs. Not open to CMSC students. A course designed to allow non-computer science majors and non-computer engineering majors to pursue a specialized topic or project.

CMSC 212 Introduction to Low-Level Programming Concepts (4) Three hours of lecture and two hours of discussion/recitation per week. Prerequisite: CMSC132 with a grade of C or better; or permission of the department based on satisfactory performance on the department placement exam and permission of department. Corequisite: CMSC250. Introduction to many of the concepts that lie behind software, such as hardware, memory layout, memory management, and operating systems. Explain how these concepts affect the design of software systems.

CMSC 214 Computer Science II (4) Three hours of lecture and two hours of laboratory per week. Prerequisites: CMSC114 with a grade of C or better; or a score of 4 or 5 on either the A or the AB C++ AP exam; or permission of department based on satisfactory performance on the department placement exam. Corequisite: CMSC250. Credit will be granted for only one of the following: CMSC214 or CMSC113. Elementary data structures, recursion, and object-oriented programming using C++.

CMSC 250 Discrete Structures (4) Three hours of lecture and two hours of discussion/recitation per week. Prerequisite: CMSC131 with a grade of C or better; MATH141; and permission of department. Formerly CMSC150. Fundamental mathematical concepts related to computer science, including finite and infinite sets, relations, functions, and propositional logic. Introduction to other techniques, modeling and solving problems in computer science. Introduction to permutations, combinations, graphs, and trees with selected applications.

CMSC 297 Honors Seminar (1) An introduction to the breadth of computer science research. Intended for all Computer Science Honors students, especially those considering a career in research. Will cover work from some of the key figures in the history of computer science, as well as research being pursued at Maryland.

CMSC 298 Special Topics in Computer Science (1-4) Prerequisite: permission of department. Repeatable to 6 credits if content differs. A course designed to allow a lower level student to pursue a specialized topic or project.

CMSC 311 Computer Organization (3) Prerequisite: CMSC212 and CMSC250 each with a grade of C (2.0) or better; and permission of department. Introduction to assembly language. Design of digital logic circuits. Organization of central processors, including instruction sets, register transfer operations, control microprogramming, data representation, and arithmetic algorithms. Memory and input/output organization.

CMSC 330 Organization of Programming Languages (3) Two hours of lecture and two hours of laboratory per week. Prerequisite: CMSC212 and CMSC250: each with a grade of C (2.0) or better; and permission of department. The semantics of programming languages and their run-time organization. Several different models of languages are discussed, including procedural (e.g., C, Pascal), functional (e.g., ML, LISP), rule-based (e.g., Prolog), and object-oriented (e.g., C++, Smalltalk). Run-time structures, including dynamic versus static scope rules, storage for strings, arrays, records, and object inheritance are explored.

CMSC 351 Algorithms (3) Prerequisite: CMSC212 and CMSC250: each with a grade of C (2.0) or better; and permission of department. CMSC351 may not count as one of the required upper level CMSC courses for students who are required to have 24 upper level CMSC credits for graduation, i.e. for students who became computer science majors prior to Fall, 2002. Credit will be granted for only one of the following: CMSC251 or CMSC351. Formerly CMSC251. A systematic study of the complexity of some elementary algorithms related to sorting, graphs and trees, and combinatorics. Algorithms are analyzed using mathematical techniques to solve recurrences and summations.

CMSC 390 Honors Paper (3) Prerequisite: admission to CMSC Honors Program. Special study or research directed toward preparation of honors paper.

CMSC 411 Computer Systems Architecture (3) Prerequisite: A grade of C or better in (CMSC311 or ENEE350) and a grade of C or better in CMSC330; and permission of department; or CMSC graduate student. Input/output processors and techniques. Intra-system communication, buses, caches. Addressing and memory hierarchies. Microprogramming, parallelism, and pipelining.

CMSC 412 Operating Systems (4) Three hours of lecture and two hours of laboratory per week. Prerequisites: A grade of C or better in (CMSC311 or ENEE350) and a grade of C or better in CMSC330; and permission of department; or CMSC graduate student. An introduction to batch systems, spooling systems, and third-generation multiprogramming systems. Description of the parts of an operating system in terms of function, structure, and implementation. Basic resource allocation policies.

CMSC 414 Computer and Network Security (3) Prerequisite: A grade of C or better in (CMSC311 or ENEE350) and a grade of C or better in CMSC330; and permission of department; or CMSC graduate student. An introduction to the topic of security in the context of computer systems and networks. Identify, analyze, and solve network-related security problems in computer systems. Fundamentals of number theory, authentication, and encryption technologies, as well as the practical problems that have to be solved in order to make those technologies workable in a networked environment, particularly in the wide-area Internet environment.

CMSC 417 Computer Networks (3) Prerequisite: A grade of C or better in CMSC351, a grade of C or better in (CMSC311 or ENEE350), and a grade of C or better in CMSC330; and permission of department; or CMSC graduate student. Computer networks and architectures. The OSI model including discussion and examples of various network layers. A general introduction to existing network protocols. Communication protocol specification, analysis, and testing.

CMSC 420 Data Structures (3) Prerequisites: A grade of C or better in CMSC330 and in CMSC351; and permission of department; or CMSC graduate student. Description, properties, and storage allocation of data structures including lists and trees. Algorithms for manipulating structures. Applications from areas such as data processing, information retrieval, symbol manipulation, and operating systems.

CMSC 421 Introduction to Artificial Intelligence (3) Prerequisites: A grade of C or better in CMSC330 and in CMSC351; and permission of the department or CMSC graduate student. Areas and issues in artificial intelligence, including search, inference, knowledge representation, learning, vision, natural languages, expert systems, robotics. Implementation and application of programming languages (e.g. LISP, PROLOG, SMALLTALK), programming techniques (e.g. pattern matching, discrimination networks) and control structures (e.g. agendas, data dependencies).

CMSC 423 Bioinformatic Algorithms, Databases, and Tools (3) Prerequisite: CMSC351 or permission of department. A practical introduction to the main topics in algorithms, databases, and tools used in bioinformatics. Includes public databases such as Genbank and PDG, software tools such as BLAST, and their underlying algorithms. Use of Perl scripting language to perform a number of useful tasks in analyzing sequence data and managing bioinformatic databases.

CMSC 424 Database Design (3) Prerequisite: CMSC420 with a grade of C or better; and permission of department;

or CMSC graduate student. Motivation for the database approach as a mechanism for modeling the real world. Review of the three popular data models: relational, network, and hierarchical. Comparison of permissible structures, integrity constraints, storage strategies, and query facilities. Theory of database design logic.

CMSC 426 Image Processing (3) Prerequisite: CMSC 420 and permission of department; or CMSC graduate student. An introduction to basic techniques of analysis and manipulation of pictorial data by computer. Image input/output devices, image processing software, enhancement, segmentation, property measurement, Fourier analysis. Computer encoding, processing, and analysis of curves.

CMSC 427 Computer Graphics (3) Prerequisites: MATH240; and a grade of C or better in CMSC420; and permission of department; or CMSC graduate student. An introduction to the principles of computer graphics. Includes an introduction to graphics displays and systems. Introduction to the mathematics of affine and projective transformations, perspective, curve and surface modeling, algorithms for hidden-surface removal, color models, methods for modeling illumination, shading, and reflection.

CMSC 430 Theory of Language Translation (3) Prerequisites: a grade of C or better in CMSC330; and permission of department; or CMSC graduate student. Formal translation of programming languages, program syntax and semantics. Finite state recognizers and regular grammars. Context-free parsing techniques such as recursive descent, precedence, LL(k) and LR(k). Code generation, improvement, syntax-directed translation schema.

CMSC 433 Programming Language Technologies and Paradigms (3) Prerequisite: CMSC330; and permission of department; or CMSC graduate student. Programming language technologies (e.g., object-oriented programming), their implementations and use in software design and implementation.

CMSC 434 Introduction to Human-Computer Interaction (3) Prerequisites: CMSC330 with a grade of C or better and PSYC100; and permission of department; or CMSC graduate student. Assess usability by quantitative and qualitative methods. Conduct task analyses, usability tests, expert reviews, and continuing assessments of working products by interviews, surveys, and logging. Apply design processes and guidelines to develop professional quality user interfaces. Build low-fidelity paper mockups, and a high-fidelity prototype using contemporary tools such as graphic editors and a graphical programming environment (eg: Visual Basic, Java).

CMSC 435 Software Engineering (3) Prerequisites: (CMSC412, CMSC417, CMSC420, CMSC430, or CMSC433) with a grade of C or better and permission of department; or CMSC graduate student. State-of-the-art techniques in software design and development. Laboratory experience in applying the techniques covered. Structured design, structured programming, top-down design and development, segmentation and modularization techniques, iterative enhancement, design and code inspection techniques, correctness, and chief-programmer teams. The development of a large software project.

CMSC 451 Design and Analysis of Computer Algorithms (3) Prerequisite: a grade of C or better in CMSC351; and permission of department; or CMSC graduate student. Fundamental techniques for designing efficient computer algorithms, proving their correctness, and analyzing their complexity. General topics include sorting, selection, graph algorithms, and basic algorithm design paradigms (such as divide-and-conquer, dynamic programming and greedy algorithms), lower bounds and NP-completeness.

CMSC 452 Elementary Theory of Computation (3) Prerequisite: CMSC351 with a grade of C or better; and permission of department; or CMSC graduate student. Alternative theoretical models of computation, types of automata, and their relations to formal grammars and languages.

CMSC 456 Cryptology (3) Prerequisites: Any two 400-level MATH courses; or CMSC330 and CMSC351; and permission of department; or CMSC graduate student. Also offered as MATH456. Credit will be granted for only one of the following: CMSC456 or MATH456. Importance in protecting data in communications between computers. The subject lies on the border between mathematics and computer science. Mathematical topics include number theory and probability, and computer science topics include complexity theory.

CMSC 460 Computational Methods (3) Prerequisites: MATH240; and MATH241; and CMSC106 or CMSC114 or ENEE114; and permission of department; or CMSC graduate student. Also offered as AMSC460. Credit will be granted for only one of the following: AMSC/CMSC/MAPL460 or AMSC/CMSC/MAPL466. Basic computational methods for interpolation, least squares, approximation, numerical quadrature, numerical solution of polynomial and transcendental equations, systems of linear equations and initial value problems for ordinary differential equations. Emphasis on methods and their computational properties rather than their analytic aspects. Intended primarily for students in the physical and engineering sciences.

CMSC 462 Computer Science for Scientific Computing (3) Prerequisite: CMSC106 or CMSC131; and (AMSC460 or CMSC460); or permission of department. This course cannot be used toward the upper-level math requirement for MATH and STAT majors. Students who take CMSC311 or CMSC330 will not be given credit for this course. Also offered as AMSC462. Credit will be granted for only one of the following: AMSC462 or CMSC462. A survey of computer science for scientists and engineers. The goal is to enable the student to write efficient, well-organized programs for today's machines. Topics to be treated include computer organization, computer arithmetic, processes and operating systems, the memory hierarchy, comparison of the Fortran and C families of languages, compilers, the run time environment, memory allocation, preprocessors and portability, and documentation. Specific topics will vary from semester to semester.

CMSC 466 Introduction to Numerical Analysis I (3) Prerequisites: MATH240; and MATH241; and CMSC106 or CMSC114 or ENEE114; and permission of department; or CMSC graduate student. Also offered as AMSC466. Credit will be granted for only one of the following: AMSC/CMSC/MAPL460 or AMSC/CMSC/MAPL466. Floating point computations, direct methods for linear systems, interpolation, solution of nonlinear equations.

CMSC 475 Combinatorics and Graph Theory (3) Prerequisites: MATH240 and MATH241; and permission of department; or CMSC graduate student. Also offered as MATH475. General enumeration methods, difference equations, generating functions. Elements of graph theory, matrix representations of graphs, applications of graph theory to transport networks, matching theory and graphical algorithms.

CMSC 477 Optimization (3) Prerequisites: (AMSC/CMSC/MAPL460, AMSC/CMSC/MAPL466, or AMSC/CMSC/MAPL467) with a grade of C or better and permission of department; or CMSC graduate students. Also offered as AMSC477. Credit will be granted for only one of the following: AMSC477, CMSC477 or MAPL477. Linear programming including the simplex algorithm and dual linear programs; convex sets and elements of convex programming; combinatorial optimization, integer programming.

CMSC 498 Selected Topics in Computer Science (1-3) Prerequisite: permission of department. An individualized course designed to allow a student or students to pursue a selected topic not taught as a part of the regular course offerings under the supervision of a Computer Science faculty member. In addition, courses dealing with topics of special interest and/or new emerging areas of computer science will be offered with this number. Selected topics courses will be structured very much like a regular course with homework, project and exams. Credit according to work completed

CMSC 499 Independent Undergraduate Research (1-3) Prerequisite: permission of department; restricted to Computer Science and Computer Engineering Majors. Students are provided with an opportunity to participate in a computer science research project under the guidance of a faculty advisor. Format varies. Students and supervising faculty member will agree to a research plan which must be approved by the department. As part of each research plan, students should produce a final paper delineating their contribution to the field.

COMM -- Communication

COMM 100 Foundations of Oral Communication (3) Not open to students who have completed COMM107. Credit will be granted for only one of the following: COMM100 or COMM107. Prerequisite for advanced communication courses. A study of oral communication principles, including verbal and nonverbal language, listening, group dynamics, and public speaking. Emphasis in this course is upon the application of these principles to contemporary problems and upon the preparation of different types of oral discourse.

COMM 107 Oral Communication: Principles and Practices (3) Not open to students who have completed COMM100. Credit will be granted for only one of the following: COMM100 or COMM107. A study of and practice in oral communication, including principles of interviewing, group discussion, listening, informative briefings, and persuasive speeches.

COMM 125 Introduction to Interpersonal Communication (3) Concepts of interpersonal communication including perception, language and meaning, nonverbal communication, listening and feedback.

COMM 170 Foundations of Listening (3) Role, process, and levels of listening behavior and the development of listening skills.

COMM 200 Critical Thinking and Speaking (3) Theory and practice of persuasive discourse analysis and composition. Research techniques, logical and rhetorical conceptions of argument, and technical principles for persuading in public venues.

COMM 220 Small Group Discussion (3) Principles, methods and types of interaction occurring in small groups with an emphasis on group discussion and decision-making.

COMM 230 Argumentation and Debate (3) A study of the fundamental principles of reasoning, analysis, and evidence preparation of debate briefs and presentation of standard academic debate.

COMM 231 News Writing and Reporting for Public Relations (3) Two hours of lecture and two hours of laboratory per week. Prerequisite: Limited to COMM majors with sophomore and junior standing, or permission of department. Credit will be granted for only one of the following: JOUR201, JOUR201P, JOUR231, or COMM231. Formerly JOUR231. Introduction to writing and researching news and information media for public relations; laboratory in news-gathering tools and writing techniques for public relations.

COMM 232 News Editing for Public Relations (3) Two hours of lecture and two hours of laboratory per week. Prerequisite: Grade of C or better in COMM231 or equivalent and permission of department. Limited to COMM majors. Credit will be granted for only one of the following: JOUR202, JOUR202P, JOUR232, or COMM232. Formerly JOUR232. Copy editing, graphic principles and processes, news and information technologies for public relations.

COMM 250 Introduction to Communication Inquiry (3) An introduction to the field of communication. Definitions, models, and contexts of communication; rhetorical theory and rhetorical criticism of discourse.

COMM 288 Communication Internship (1-6) Prerequisite: permission of department. Repeatable to 6 credits if content differs. An individual experience arranged by the student with the instructor. Does not satisfy communication major requirements. 45 hours of supervised internship per credit hour with communication professional. Not a substitute for COMM386.

COMM 298 Selected Topics in Communication (3) Repeatable to 6 credits if content differs. Special topical study of contemporary issues in communication.

COMM 324 Communication and Gender (3) The creation of images of male and female, and masculine and feminine, through communication, the differences in male and female communication behaviors and styles, and the implications of those images and styles for male-female transactions.

COMM 330 Argumentation and Public Policy (3) Contemporary theories of argumentation with special emphasis on methods of formulating and critiquing public policy argument.

COMM 340 Communicating the Narrative (3) The role of narratives in communicating messages and development of strategies to effectively communicate the narrative form through storytelling, oral reading, and anecdotes.

COMM 350 Public Relations Theory (3) Prerequisite: Grade C or better in JOUR201, JOUR231, COMM231 or COMM250; or permission of department. For COMM majors only. Not open to students who have completed JOUR330. Credit will be granted for only one of the following: COMM350 or COMM430 or JOUR330 or JOUR530. Formerly JOUR330. The historical development and contemporary status of public relations in business, government, associations and other organizations. Application of communication theory and social science methods to the research, planning, communication and evaluation aspects of the public relations process.

COMM 351 Public Relations Techniques (3) Prerequisite: A grade C or better in JOUR202, JOUR232 or COMM232; and COMM350. For COMM majors only. Not open to students who have completed JOUR331. Credit will be granted for only one of the following: COMM351 or JOUR331. Formerly JOUR331. The techniques of public relations, including news releases, publications and printed materials, audio-visual techniques, speeches and special events. Application of these techniques in laboratory and field projects.

COMM 352 Specialized Writing in Public Relations (3) Prerequisite: A grade of C or better in COMM351. For COMM majors only. Not open to students who have completed JOUR332. Credit will be granted for only one of the following: COMM352 or JOUR332. Formerly JOUR332. Public Relations writing for science, technology, health, medicine, corporate finance, educational policy, law and government in broadcast and technical media, as well as newspapers, magazines, proposals, speeches and correspondence.

COMM 354 Public Relations Programs (3) Prerequisite: COMM350. Not open to students who have completed JOUR334. Credit will be granted for only one of the following: COMM354 or JOUR334. Formerly JOUR334.

Analysis of eight major programs typically carried out by public relations professionals: employee relations, media relations, financial relations, member relations, governmental relations, community relations, fundraising and dealing with activist public.

COMM 360 The Rhetoric of Black America (3) An historical-critical survey of the rhetoric of Black Americans from the colonial period to the present.

COMM 370 Mediated Communication (3) Prerequisite: COMM250. Junior standing. Analysis and critique of structure, performance, content, effects, and future of mediated communication.

COMM 383 Urban Communication (3) A study of communication variations in the urban setting with emphasis on communication problems encountered in ethnic relations. Strategies for improving communication.

COMM 386 Experiential Learning (3-6) 45 hours of supervised internship per credit hour. Only 3 credits may be used to fulfill the requirements for the Communication major. Prerequisite: permission of department. Junior standing. For COMM majors only. Supervised internship experience with communication professionals. Relation of academic training to professional experience.

COMM 388 Communication Practicum (1-3) Prerequisite: permission of department. Repeatable to 3 credits if content differs. Supervised professional-level practice in communication.

COMM 398 Selected Topics in Communication (3) Repeatable to 6 credits if content differs. Topical study of contemporary issues in communication.

COMM 399 Honors Thesis (3) Nine hours of laboratory per week. Prerequisite: permission of department. For COMM majors only. Repeatable to 6 credits if content differs.

COMM 400 Research Methods in Communication (3) Prerequisite: COMM250 and an introductory course in statistics. For COMM majors only. Philosophy of scientific method; role of theory; research ethics; empirical research methods (measurement, sampling, design, analysis).

COMM 401 Interpreting Strategic Discourse (3) Prerequisite: COMM250. For COMM majors only. Principles and approaches for practical analysis of discourse designed to shape audience opinion.

COMM 402 Communication Theory and Process (3) Prerequisite: COMM250. For COMM majors only. Philosophical and conceptual analysis of communication theories.

COMM 420 Theories of Group Discussion (3) Current theory, research and techniques regarding small group process, group dynamics, leadership and decision-making.

COMM 421 Communicating Leadership (3) Not open to students who have completed COMM498L. Examines the nature of leadership, theories of leadership from a communication perspective, relationships between leadership, authority, power, and ethics. Explores leadership responsibilities, commitments, and actions.

COMM 422 Communication Management (3) Communication policies, plans, channels, and practices in the management of the communication function in organizations.

COMM 423 Communication Processes in Conferences (3) Group participation in conferences, methods of problem solving, semantic aspects of language, and the function of conferences in business, industry and government settings.

COMM 424 Communication in Complex Organizations (3) Structure and function of communication within organizations: organizational climate and culture, information flow, networks and role relationships.

COMM 425 Negotiation and Conflict Management (3) Role of communication in shaping negotiation and conflict processes and outcomes.

COMM 426 Conflict Management (3) Recommended: COMM425, COMM250, and COMM402. Role of communication in managing conflict processes.

COMM 430 Public Relations Theory and Techniques (3) Prerequisite: JOUR201 or equivalent; and permission of department. Not open to students who have completed COMM350. Credit will be granted for only one of the following: COMM350, COMM430, COMM630, JOUR530 and JOUR630. Formerly JOUR530. Theories relevant to the strategic management of public relations and techniques used in programs to communicate with publics of organizations

COMM 435 Theories of Interpersonal Communication (3) Prerequisite: COMM400 or permission of department. Major theoretical approaches and research trends in the study of interpersonal communication.

COMM 450 Ancient and Medieval Rhetorical Theory (3) Prerequisite: COMM250. For COMM majors only. Credit will be granted for only one of the following: COMM450, or COMM650. A survey of rhetorical theory in the ancient and medieval periods. Emphasis is placed on the theoretical problems that gave rise to its development within both periods. Authors include Isocrates, Plato, Aristotle, Cicero, Quintilian, Hermogenes, Martianus Capella, Aurelius Augustine, Alberic of Monte Cassino, Geoffrey of Vinsauf and Robert of Basevorn.

COMM 451 Renaissance & Modern Rhetoric Theory (3) A survey of rhetorical theory in the renaissance and modern periods. Emphasis is placed on the theoretical trends that dominate rhetorical thinking during both periods--especially in Great Britain. Authors include Wilson, Sherry, Rainolde, Day, Hyperius, Cox, Ramus, Talon, Bacon, Pascal, Fenelon, Sheridan, Campbell, Blair, and Whately.

COMM 453 The Power of Discourse in American Life (3) The potential of language forms and strategic discourse to create, perpetuate, and alter patterns of political and cultural behavior. The influence of contemporary political and cultural discourse on public understanding, public policy, and day-to-day life.

COMM 454 Rhetoric of the 1960s (3) Prerequisite: COMM401 or permission of department. Not open to students who have completed COMM453 (Spring 2003). Study of key rhetoric of the 1960s. Treats rhetoric of relevant Presidents and several protest movements including civil rights, anti-war, and women's liberation. Contrasts traditional modes of argument with alternative rhetorical forms.

COMM 455 Speechwriting (3) The study of message strategies in order to research and develop effective speech texts appropriate to speakers and their audiences in various public contexts.

COMM 458 Seminar in Political Communication (3) Prerequisite: COMM250. Repeatable to 6 credits if content differs. The examination of special topics for and theories of political communication.

COMM 460 Public Life in American Communities, 1634-1900 (3) Ways that Americans have used their voice to create public life. Focus is on the diverse social communities that have characterized American life and the place and characteristics of oral discourse in each.

COMM 461 Voices of Public Leadership in the Twentieth Century (3) Study of the use of speaking in the power struggles of the twentieth century. Focus is on important speakers of the century, their social and policy influence, and the struggle to expand the diversity of voices with power in the public sphere.

COMM 468 Seminar in Mediated Communication (3) Prerequisites: COMM/JOUR350 or COMM402 or COMM450. Junior standing. Repeatable to 6 credits if content differs. The examination of special topics related to the study of mediated communication.

COMM 469 The Discourse of Social Movements (3) Recommended: COMM401. Junior standing. Repeatable to 6 credits if content differs. Study of key social movements that have influenced American social and political life. In alternate years the Civil Rights Movement and the Rhetoric of Women's Suffrage and Abolitionism. Consideration of how groups excluded from or marginalized in American political life affect social change.

COMM 470 Listening (3) The principles of listening behavior.

COMM 471 Public Communication Campaigns (3) Prerequisite: COMM200 or permission of department. Diffusion theory and its implications for public communication campaigns.

COMM 472 Nonverbal Communication (3) Nonverbal communication in human interaction theory and research on proxemics, kinesics and paralanguage as expression of relationship, affect and orientation within and across cultures.

COMM 475 Persuasion (3) Bases of persuasion, with emphasis on recent experimental developments in persuasion.

COMM 476 Language, Communication, and Action (3) The nature of communication as symbolic action. Topics include language, meaning, intention, understanding, and consequences of communication.

COMM 477 Discourse Analysis (3) Concepts of textual and discourse analysis applied to speech situations.

COMM 478 Communication Colloquium (1) Repeatable to 4 credits if content differs. Current trends and issues in the field of communication, stressing recent research methods. Recommended for senior and graduate student majors and minors in communication.

COMM 482 Intercultural Communication (3) The major variables of communication in an intercultural context: cultural, racial and national differences; stereotypes; values; cultural assumptions; and verbal and nonverbal channels.

COMM 483 Senior Seminar in Public Relations (3) Prerequisite: COMM351 and COMM400. Not open to students who have completed JOUR483. Credit will be granted for only one of the following: COMM483 or JOUR483. Formerly JOUR483. Integration of theory, techniques and research methods into the planning and execution of public relations campaigns for specific organizations. Analysis of research on the case studies of public relations.

COMM 488 Communication Portfolio Project (1) Senior standing. For COMM majors only. Repeatable to 3 credits if content differs. Preparation of the professional communication portfolio.

COMM 489 Topical Research (1-3) Prerequisite: permission of department. Repeatable to 6 credits if content differs. Individualized research projects conducted with a faculty sponsor.

COMM 498 Seminar (3) Prerequisite: permission of instructor. Senior standing. Present-day communication research.

CPSP -- College Park Scholars Program

CPSP 118 College Park Scholars Colloquium I (1-3) Prerequisite: admission to College Park Scholars Program. Introductory colloquium for specific College Park Scholars Program.

CPSP 126 Issues in Public Leadership (3) Prerequisite: admission to College Park Scholars Public Leadership Program. Development of effective leaders and change agents through analysis and application of leadership theories and definitions, personal leadership, tasks and processes of leadership, leader/follower interactions, group dynamics, and transformation of communities.

CPSP 218 College Park Scholars Colloquium II (1-3) Prerequisite: admission to College Park Scholars Program. Colloquium for specific College Park Scholars Program.

CPSP 221 Cultures of the Americas (3) Enrollment limited to students in the American Cultures program of College Park Scholars. Prerequisite: CPSP118R. Truly interdisciplinary, the course brings together readings and methodologies from history, literature and literary criticism, political science, anthropology, psychology and sociology. The course is comparative and hemispheric in approach, including the "other Americas": Canada, Mexico, the Caribbean and Central and South America.

CPSP 227 College Park Scholars Capstone: Science, Technology, and Society (3) Prerequisite: An [SB] CORE course and admission to College Park Scholars Program. Capstone course for College Park Scholars - Science, Technology, and Society Program. Exploration and understanding of ways science and technology shape and are shaped by society.

CPSP 229 Supervised Online Communication Practicum (1-3) Prerequisite: admission to College Park Scholars Program. Repeatable to 6 credits. Introduction to concepts and skills of web publishing through simulation of e-business environment. As teams, students form start-up web design companies and create websites for clients from non-profit organizations. Fulfills the experiential learning course requirement for College Park Scholars Citation.

CPSP 239 Individual Practicum (1-3) Prerequisite: admissions to College Park Scholars Program. Repeatable to 6 credits. Independent study or internship in interest area supervised by faculty member. Must be approved by program faculty director. Fulfills the experiential learning course requirement for College Park Scholars Citation.

CPSP 249 Service-Learning (1-3) Prerequisite: admissions to College Park Scholars Program. Repeatable to 6 credits. Use of community service projects as the context for building knowledge and skills. Structured class meetings for critical analysis and reflection on topics such as citizenship, community, leadership, and discipline-specific issues. Fulfills the experiential learning course requirement for the College Park Scholars Citation.

CPSP 259 Discovery Projects Research (1-3) Prerequisite: admissions to College Park Scholars Program. Repeatable to 6 credits if content differs. Through independent research with faculty and subject matter experts, sophomores design and implement research study using specific methodologies on topic of interest. Findings presented at annual campus showcase. Fulfills the experiential learning course requirement for the College Park Scholars Citation.

CPSP 279 Special Topics in International Studies (3) Restricted to College Park Scholars students or by permission. Repeatable to 6 credits if content differs. Study Abroad -- topics vary.

CPSP 288 Special Topics in College Park Scholars (1-3) Prerequisite: admission to College Park Scholars Program. Repeatable to 6 credits if content differs. Topics of special interest to College Park Scholars, such as case studies, book groups on science and technology, facilitating dialogue, and other timely issues.

CPSP 318 College Park Scholars Colloquium III (1-3) Prerequisite: admission to College Park Scholars Program. Colloquium for specific College Park Scholars Program.

CPSP 339 Advanced Practicum (1-3) Prerequisite: admissions to College Park Scholars Program and permission of instructor. Repeatable to 6 credits. Independent study designed for students who wish to extend in greater depth and detail projects begun in sophomore year. Subject varies. Overseen by faculty director or mentor.

CPSP 369 Guided College Park Scholars Teaching (1-3) Prerequisite: admission to College Park Scholars Program and permission of instructor. Repeatable to 6 credits. For CPSP colloquia section leaders. Guided teaching experience for selected students in College Park Scholars Program.

CPSP 379 College Park Scholars Travel Study (3) Restricted to College Park Scholars students or by permission. Repeatable to 6 credits if content differs. College Park Scholars travel studies course focused on a multidisciplinary theme.

CPSP 386 Experiential Learning (3-6)

CPSP 388 Advanced Special Topics in College Park Scholars (1-3) Prerequisite: admissions to College Park Scholars Program. Repeatable to 6 credits if content differs. Interdisciplinary topics of special interest to College Park Scholars, such as legacies of the cold war, environmental ethics, women in leadership, and other timely issues. Projects build on previous work in College Park Scholars.

DANC -- Dance

DANC 102 Rhythmic Training for Dance (2) One hour of lecture and two hours of laboratory per week. Restricted to DANC majors. All other majors will require permission. Basic approaches to rhythmic principles related to dance.

DANC 109 Improvisation I (2) One hour of lecture and two hours of laboratory per week. Restricted to DANC majors. All other majors will require permission. Repeatable to 4 credits. An introduction to the process of spontaneous movement discovery involving solo and group movement experiences.

DANC 118 Beginning Tap (2) One hour of lecture and two hours of laboratory per week. Repeatable to 4 credits. Introduction to tap for the beginning student.

DANC 119 Introduction to American Social Dance (2) One hour of lecture and two hours of laboratory per week. Repeatable to 4 credits. Social dance forms of North America.

DANC 128 Fundamentals of Ballet (2) One hour of lecture and two hours of laboratory per week. For non-majors only. Repeatable to 4 credits. Introduction to ballet technique and terminology for the beginning student.

DANC 138 Introduction to Ethnic Dance (2) Repeatable to 4 credits with permission of department. Traditional dances and music of selected cultures.

DANC 148 Fundamentals of Modern Dance (2) One hour of lecture and two hours of laboratory per week. For non-majors only. Repeatable to 4 credits. Introduction to modern dance with emphasis on the development of fundamental movement skills.

DANC 149 Fundamentals of Modern Dance II (2) Two hours of laboratory and one hour of discussion/recitation per week. Prerequisite: DANC148. Repeatable to 4 credits. Continuation of the development of axial and locomotor movement skills with emphasis on the development of functional alignment, musicality, range of movement, coordination, and movement memory.

DANC 158 Fundamentals of Jazz (2) One hour of lecture and two hours of laboratory per week. For non-majors only. Repeatable to 4 credits. Introduction to the jazz style in dance for the beginning student.

DANC 171 Movement Integration (2) One hour of lecture and two hours of laboratory per week. Techniques for reducing tension and achieving integrated muscular control and coordination.

DANC 199 Practicum in Choreography, Production and Performance I (1-3) Prerequisite: permission of department. Repeatable to 6 credits. Choreography, production, and performance of student works, both on and off campus.

DANC 200 Introduction to Dance (3) A study of dance as a form of communication and as an art form; a survey of the theories and styles of dance, and their relationships to other art forms.

DANC 208 Choreography I (3) Prerequisites: DANC102 and DANC109. Repeatable to 6 credits. Basic principles of dance composition: space, time, dynamics, and movement invention. The development of critical awareness.

DANC 210 Dance Production (3) A survey of theatre crafts and techniques involved in dance production, including lighting, sound, set and costume design and construction, stage-management and videotaping.

DANC 228 Ballet I (2) One hour of lecture and two hours of laboratory per week. Prerequisite: permission of department. Repeatable to 4 credits. Barre and center work for alignment, strength, flexibility and coordination. Introduction to ballet terminology.

DANC 229 Ballet II (2) One hour of lecture and two hours of laboratory per week. Prerequisite: permission of department. Repeatable to 4 credits. Continuation of DANC228.

DANC 248 Modern Dance I (3) Two hours of lecture and two hours of laboratory per week. Prerequisite: Dance major standing or permission of department. Repeatable to 6 credits. Body alignment, rhythm, dynamics, space and dance phrases.

DANC 249 Modern Dance II (3) Two hours of lecture and two hours of laboratory per week. Prerequisite: DANC248 and permission of department. Repeatable to 6 credits. Continuation of DANC248.

DANC 258 Jazz I (2) One hour of lecture and two hours of laboratory per week. Prerequisite: DANC158 or dance major standing. Repeatable to 4 credits. Jazz warm-ups and combinations emphasizing rhythm and movement isolations.

DANC 259 Jazz II (2) One hour of lecture and two hours of laboratory per week. Prerequisite: DANC258. Repeatable to 4 credits. Continuation of the principles of Jazz I. Emphasis on style and execution of movement.

DANC 299 Practicum in Choreography, Production and Performance II (1-3) Prerequisite: DANC199 or permission of department. Repeatable to 6 credits. Continuation of DANC199.

DANC 302 Music Sources for Dance (3) Prerequisite: DANC102 or permission of department. Study of musical literature, improvisation and composition as they relate to dance. Techniques of instrumental accompaniment.

DANC 305 Principles of Teaching Dance (3) Prerequisites: DANC102, DANC208, and DANC248. Theory and practice of dance instruction including methods, lesson plans and practice teaching.

DANC 306 Creative Dance for Children (3) Prerequisite: DANC305 or equivalent. Communication of the essential elements of dance to children. The development of movement into simple forms to serve as a symbol of creative individual expression.

DANC 308 Choreography II (3) Prerequisite: DANC208. Repeatable to 6 credits. Exploration of the formal elements of choreography; theme, development, repetition, contrast, transition, continuity and structure.

DANC 309 Improvisation II (2) Prerequisite: DANC109 or audition. Repeatable to 4 credits. Continuation of DANC109.

DANC 310 Dance Lighting (3) Prerequisite: DANC210. Two lectures and two laboratory periods per week. Theory and practice of stage lighting with specific reference to designing for dance.

DANC 328 Ballet III (2) One hour of lecture and two hours of laboratory per week. Prerequisite: permission of department. Repeatable to 4 credits. Execution of the vocabulary of ballet movement with technical accuracy.

DANC 329 Ballet IV (2) One hour of lecture and two hours of laboratory per week. Prerequisite: permission of department. Repeatable to 4 credits. Continuation of DANC328.

DANC 348 Modern Dance III (3) Two hours of lecture and two hours of laboratory per week. Prerequisite: DANC249 and permission of department. Repeatable to 6 credits. The body as an instrument of expression; techniques for increasing kinesthetic sensitivity.

DANC 349 Modern Dance IV (3) Two hours of lecture and two hours of laboratory per week. Prerequisite: DANC348 and permission of department. Repeatable to 6 credits. Continuation of DANC348.

DANC 365 Labanotation (3) Prerequisites: DANC102 and DANC248. Formerly DANC266. Introduction to Rudolf Laban's system of structural movement analysis.

DANC 367 Dance in World Cultures (3) An examination of non-Western dance forms, including classical, ceremonial, and folk-traditional in their historical and societal contexts.

DANC 370 Kinesiology for Dancers (4) For DANC majors only. A study of the biological and physical principles of movement and the effects of dancing upon the structure and function of the human body.

DANC 379 Practicum in Dance (1-3) Repeatable to 12 credits. Performing experience for the student dancer who has developed a professional level of competence.

DANC 386 Experiential Learning (3-6) Prerequisite: permission of department. Junior standing.

DANC 388 Choreography III (3) Prerequisite: DANC308 or equivalent. Repeatable to 6 credits. Theoretical and creative aspects of choreography for small groups. Emphasis on individual projects.

DANC 398 Directed Studies in Dance (1-6) Prerequisite: permission of department. Repeatable to 6 credits.

DANC 399 Practicum in Choreography, Production and Performance III (1-3) Prerequisite: DANC299 or permission of department. Repeatable to 6 credits. Continuation of DANC299.

DANC 410 Technical Theater Production for Dance (3) Two hours of lecture and two hours of laboratory per week. Prerequisite: DANC210 or equivalent; or permission of department. A study of the theoretical principles of production and the practical application of those principles to the presentation of dance works.

DANC 428 Advanced Ballet Technique I (1) Two hours of laboratory per week. Prerequisite: permission of department. Repeatable to 3 credits. Advanced ballet technique with emphasis on physical and expressive skills.

DANC 429 Advanced Ballet Technique II (1) Two hours of laboratory per week. Prerequisite: permission of department. Repeatable to 3 credits. Intensive work in ballet technique for the professionally-oriented dancer.

DANC 448 Modern Dance V (3) Two hours of lecture and two hours of laboratory per week. Prerequisite: DANC349 and audition. Repeatable to 6 credits. Complex phrases of modern dance movement with emphasis on articulation and expression.

DANC 449 Modern Dance VI (3) Two hours of lecture and two hours of laboratory per week. Prerequisite: DANC448 and permission of department. Repeatable to 6 credits. Continuation of DANC448.

DANC 466 Laban Movement Analysis (3) For DANC majors only. Introduction to Rudolf Laban's system of qualitative movement analysis in relation to understanding personal movement style. Application to dance performance, teaching, composition and research.

DANC 468 Modern Repertory (3) Prerequisite: DANC349 or permission of department. Repeatable to 6 credits if content differs. Form, content, music, design and performance of modern dance works.

DANC 479 Advanced Practicum in Dance (1-3) Repeatable to 6 credits. Advanced level performing experience for the student dancer who has developed an advanced professional level of competence.

DANC 482 History of Dance I (3) Prerequisite: DANC200. The development of dance from primitive times to the Middle Ages and the relationship of dance forms to patterns of culture.

DANC 483 History of Dance II (3) Prerequisite: DANC200. The development of dance from the Renaissance period to the present time and the relationship of dance forms to patterns of culture.

DANC 485 Seminar in Dance (3) Prerequisite: DANC483. Senior standing. For DANC majors only. Formerly DANC484. Individual research leading to a presentation with written documentation of the process, serving as a culmination of undergraduate study for dance majors.

DANC 489 Special Topics in Dance (1-3) Prerequisite: permission of department. Repeatable to 6 credits if content differs. Theoretical, choreographic, pedagogic, or performance study.

DANC 499 Practicum in Choreography, Production and Performance IV (1-6) Prerequisite: permission of department. Repeatable to 6 credits. Advanced workshop in dance presentation, including performing, production and planned field experiences.

EALL -- East Asian Languages and Literatures

EALL 300 The Languages of East Asia (3) A survey of Chinese, Japanese, and Korean, and the languages of other East Asian nationalities. Provides a basic understanding of the structures of these languages. Topics covered include the characterizing features; the relationships of the languages to each other; the geographical, social, and historical settings. No knowledge of Asian languages is required. Taught in English.

EALL 310 Asian Culture and the Sinosphere (3) Cultural, literary, linguistic, social and historical influence of China in East and Southeast Asia.

ECON -- Economics

ECON 200 Principles of Micro-Economics (4) Prerequisite: MATH110 or placement in MATH113/MATH115/MATH111. It is recommended that students complete ECON200 before taking ECON201. Introduces economic models of the behavior of individual consumers and business firms, problems of international trade, the distribution of income, policies for eliminating poverty and discrimination, the problems of environmental pollution, and the impact of different market structures upon economic activity.

ECON 201 Principles of Macro-Economics (4) Prerequisite: MATH110 or placement in MATH113/MATH115/MATH111. It is recommended that students complete ECON200 before taking ECON201. Credit will be granted for only one of the following: ECON201 or ECON205. An introduction to the problems of unemployment, inflation, and economic growth. Emphasis on roles of monetary and fiscal policy in the conduct of macroeconomic policy.

ECON 300 Methods and Tools for Economic Analysis (3) Prerequisite: By permission with ECON200, ECON201, and {MATH220 or MATH140} with a grade of 'C'(2.0) or better. For ECON majors only and permission of department. Not open to students who have completed MATH240 or MATH241. Covers several mathematics techniques and demonstrates their application to a wide variety of models and problems in both microeconomic and macroeconomic analysis. Reviews concepts from algebra and elementary calculus and introduces components of multivariable calculus, linear algebra and differential equations.

ECON 305 Intermediate Macroeconomic Theory and Policy (3) Prerequisites: ECON200, ECON201, and (MATH220 or MATH140). Not open to students who have completed ECON325. ECON majors are required to take ECON325. Credit will be granted for only one of the following: ECON305 or ECON325. Analysis of the determination of national income, employment, and price levels. Discussion of consumption, investment, inflation, and government fiscal and monetary policy.

ECON 306 Intermediate Microeconomic Theory (3) Prerequisites: ECON200, ECON201, and (MATH220 or MATH140). Not open to students who have completed ECON326. ECON majors are required to take ECON326. Credit will be granted for only one of the following: ECON306 or ECON326. Analysis of the theories of consumer behavior and of the firm, market systems, distribution theory and the role of externalities.

ECON 310 European Economic History (3) Prerequisite: ECON200 and ECON201. The evolution of the capitalist system from its medieval origins to the present. Emphasis on dynamic forces of cumulative change in capitalism, including capital accumulation, technology, expansion of markets, the corporate form of private property in the means of production, and the relation of capitalism to war and revolution.

ECON 311 American Economic History Before the Civil War (3) Prerequisites: ECON200 and ECON201.. For ECON majors only. Economic concepts are used to analyze various aspects of the founding and early history of the U.S., including the British settlement of the North American colonies, the economics of the American Revolutionary war, the writing of the Constitution, the development of financial markets, policies on public lands and the spread of western agriculture, slavery, banking, and early industrialization.

ECON 312 American Economics After the Civil War (3) Prerequisites: ECON200 and ECON201. Topics include: the economics of the Civil War, the performance of southern agriculture in the late 19th century, the rise of large corporations, industrialization, the development of financial markets, the creation of the Federal Reserve Board, the economics of the Great Depression and the New Deal, the economic impact of World War II, and the rise of the modern service economy in the late 20th century.

ECON 314 Economic History, Development and Policy (3) Prerequisite: ECON306. For ECON majors only. Study abroad in the economic history, institutional development, and recent economic policy problems of selected areas.

ECON 315 Economic Development of Underdeveloped Areas (3) Prerequisites: ECON200 and ECON201. Credit will be granted for only one of the following: ECON315 or ECON416. Analysis of the economic and social characteristics of underdeveloped areas. Recent theories of economic development, obstacles to development, policies and planning for development.

ECON 317 Global Economic Policies (3) Prerequisite: ECON200 and ECON201. For ECON majors only or by permission of department. Credit will be granted for only one of the following: ECON398C or ECON317. Formerly ECON398C. Analysis of policy options and debates on fostering economic growth and development in a global economy where national boundaries are no longer relevant. Topics covered will include real loanable funds markets in both local and international contexts during normal conditions and during financial crises, the design of trade and industrial policies, and the role of the World Bank, IMF, WTO, and other international agencies as well as regional and bilateral trade agreements. Emerging economies will be emphasized.

ECON 321 Economic Statistics (3) Prerequisite: ECON200, ECON201, {MATH220 or MATH140} with a grade of 'C'(2.0) or better. For ECON majors only. Not open to students who have completed BMGT230 or BMGT231 (unless with department permission). Credit will be granted for only one of the following: BIOM301, BMGT230, ECON321, EDMS451, GEOG305, GVPT422, PSYC200, or SOCY201. Introduction to the use of statistics in economics. Topics include: Probability, random variables and their distributions, sampling theory, estimation, hypothesis testing, analysis of variance, regression analysis and correlation.

ECON 325 Intermediate Macroeconomic Analysis (3) Prerequisite: ECON300 with a grade of 'C' (2.0) or better. For ECON majors only. Credit will be granted for only one of the following: ECON305 (not accepted for major requirements) or ECON325. Analysis of macroeconomic behavior and policy with emphasis on theoretical rigor. Topics include the determinants of economic growth, unemployment, inflation, and international economic flows.

ECON 326 Intermediate Microeconomic Analysis (3) Prerequisite: ECON300 with a grade of 'C' (2.0) or better. For ECON majors only. Credit will be granted for only one of the following: ECON306 (not accepted for major requirements) or ECON326. Analysis of economic decision-making by individual buyers and sellers, and resulting market outcomes, with emphasis on theoretical rigor. The efficient properties of perfect competition are examined, followed by consideration of market power, externalities, and asysmetric information.

ECON 330 Money and Banking (3) Prerequisite: ECON200 and ECON201. The structure of financial institutions and their role in the provision of money and near money. Analysis of the Federal Reserve System, the techniques of central banks, and the control of supply of financial assets in stabilization policy. Relationship of money and credit to economic activity and the price level.

ECON 340 International Economics (3) Prerequisite: ECON200 and ECON201. Credit will be granted for only one of the following: ECON340 or ECON441. Covers economic models of international transactions, exchange rates, and balance of payments. Analysis of policies of protection, devaluation, and exchange rate stabilization and their consequences.

ECON 375 Economics of Poverty and Discrimination (3) Prerequisites: (ECON200 and ECON201) or ECON205. The causes of the persistence of low income groups; the relationship of poverty to technological change, to economic growth, and to education and training; economic results of discrimination; proposed remedies for poverty and discrimination.

ECON 386 Experiential Learning (3) Prerequisite: ECON200, ECON201, and cumulative GPA > 2.75; and permission of department. Junior standing. For ECON majors only. See Department Advising Office for course eligibility, course requirements, and application information.

ECON 387 Major Transitions: From Undergraduate to Professional (1) Junior standing. For ECON majors only. Credit will be granted for only one of the following: BSOS388C or ECON387. Formerly BSOS388C. Course involves a focus on students' interests and professional opportunities in their field; integration of major program of study and career concern; issues of transition into graduate school and employment; includes experiential/explorational activities.

ECON 391 Survey of Urban Economics Problems and Policies (3) An introduction to the study of urban economics through the examination of current policy issues. Topics may include suburbanization of jobs and residences, housing and urban renewal, urban transportation, development of new towns, ghetto economic development, problems in services such as education and police.

ECON 396 Independent Honors Study (3) Prerequisite: ECON422 and permission of department. Normally taken in senior year. Course will explore selected topics in economic theory and its application in depth. Analysis of methodologies in economic research and the development of student skills in research methods. Students will prepare workshop papers.

ECON 397 Honors Thesis (3) Prerequisites: ECON396 and candidacy for honors in economics. General supervision will be provided through assembled meetings with the professor in charge of the course.

ECON 398 Topics in Economics (3) Prerequisite: ECON200, ECON201, and permission of department. Repeatable to 6 credits if content differs. This course is designed to meet the changing interests of students and staff. Topics vary in response to those interests. Students are advised to seek information about the coverage and prerequisites during the registration period.

ECON 399 Individual Readings and Research For Undergraduates (1-3) Prerequisite: ECON325 and ECON326; and permission of department. Repeatable to 6 credits if content differs. Individual Instruction course: contact department or instructor to obtain section number. Open only to students who have previously earned 6 or more credits in 400-level economics courses.

ECON 401 Current Issues in American Economic Policy (3) Prerequisite: ECON326 with a grade of 'C' or better (or ECON306 by permission of department). For ECON majors only. Analysis of current economic problems and public policies. Inflation, unemployment, market power, government regulation, poverty and distribution of income, federal budget and tax policy, environment.

ECON 402 Macroeconomic Models and Forecasting (3) Prerequisite: ECON325 with a grade of 'C' (2.0) or better (ECON305 by permission of department). For ECON majors only. Analysis of the fluctuations in economic activity and the formulation and use of forecasting models of the economy. Illustrations of computer macro models and forecasting problems.

ECON 407 Advanced Macroeconomics (3) Prerequisite: ECON325 with a grade of 'C' (2.0) or better (or ECON305 by permission of department). For ECON majors only. An in-depth analysis of current issues in macroeconomic theory and policy. Topics covered include: 1. alternative perspectives on macroeconomics including monetarism, new classical equilibrium models, rational expectations, and real business cycle models; 2. long term growth, the slowdown in productivity growth, and concerns about U.S. competitiveness; 3. the effectiveness of macroeconomic policy in an open economy; 4. the effects of finance on the real sector.

ECON 412 Economic History and Modern Development (3) Prerequisite: ECON325 and ECON326 with a grade of 'C' (2.0) or better (or ECON306 and ECON305 by permission). For ECON majors only. Analysis of major economic, political, and social change in the developed world since 1800. This includes factors contributing to increases in economic performance, changes in the form of government, technological change (including industrialization), and integration and disintegration of the global economy. Emphasis is on institional changes in how societies organize economic and political activities.

ECON 413 Information and Markets (3) Prerequisite: ECON326 with a grade of 'C' (2.0) or better (or ECON306 by permission of department). For ECON majors only. Presents advanced microeconomic theory, concentrating on how information affects exchange and market outcomes, including insurance, signaling, reputations, and incentive contracts. Studies applications to various markets and policy questions.

ECON 414 Game Theory (3) Prerequisite: ECON326 with a grade of 'C' or better (or ECON306 by permission of department). For ECON majors only. Not open to students who have completed GVPT399A. Credit will be granted for only one of the following: ECON414 or GVPT399A. Studies the competitive and cooperative behavior that results when several parties with conflicting interests must work together. Learn how to use game theory to analyze situations of potential conflict. Applications are drawn from economics, business, and political science.

ECON 415 Market Design (3) Prerequisite: ECON414 with a grade of "C" or better; or permission of department. For ECON majors only. Most decisions are not made in isolation, but involve interaction with others. Applies the foundations of game theory learned in ECON414 to several important topics in business and economics. Emphasis is on topics of practical importance: negotiation, markets with few participants, pricing and incentives.

ECON 416 Theory of Economic Development (3) Prerequisite: ECON325 (or ECON305 by permission of department) and ECON321 with a grade of 'C' (2.0) or better. For ECON majors only. Credit will be granted for only one of the following: ECON315 or ECON416. Economic theory of the developing nations; role of innovation, capital formation, resources, institutions, trade and exchange rates, and governmental policies.

ECON 418 Economic Development of Selected Areas (3) Prerequisite: ECON326 and either ECON315 or ECON416. For ECON majors only. Repeatable to 6 credits if content differs. Institutional characteristics of a specific area are discussed and alternate strategies and policies for development are analyzed.

ECON 422 Econometrics I (3) Prerequisites: ECON321 (or STAT400) with a grade of 'C' (2.0) or better. For ECON majors only. Emphasizes the interaction between economic problems and the assumptions employed in statistical theory. Formulation, estimation, and testing of economic models, including single variable and multiple variable regression techniques, theory of identification, and issues relating to inference.

ECON 423 Econometrics II (3) Prerequisite: ECON422. For ECON majors only. Interaction between economic problems and specification and estimation of econometric models. Topics include issues of autocorrelation, heteroscedasticity, functional form, simultaneous equation models, and qualitative choice models.

ECON 424 Computer Methods in Economics (3) Prerequisite: ECON325 and ECON326 (or ECON305 and ECON306 by permission of department) and ECON321 with a grade of 'C' (2.0) or better. For ECON majors only. Database development from Internet and other sources, research methods, and statistical analysis in economics using EXCEL and SAS.

ECON 425 Mathematical Economics (3) Prerequisite: ECON325 and ECON326 with a grade 'C' (2.0) or better (or ECON305 and ECON306 by permission of department). For ECON and MATH majors only. Mathematical developments of theory of household and firm, general equilibrium and welfare economics, market imperfections, and role of information.

ECON 435 Financial Markets and the Macroeconomy (3) Finance majors will not receive credit for ECON435. Prerequisite: ECON326 with a grade of 'C' (2.0) or better (or ECON306 by permission of department). For ECON majors only. Not open to students who have completed BMGT343 (for credit). Credit will be granted for only one of the following: BMGT343 or ECON435. Formerly ECON398F. The different types of financial assets that exist, the markets that they trade in, and the determination of their prices and rates of return are examined. Specific topics that will be covered include the Markowitz portfolio selection model, the capital asset pricing model, the arbitrage pricing theory, the efficient markets hypothesis, the term structure of interest rates, and options. There will be almost no emphasis on issues in corporate finance.

ECON 441 Theory of International Economics (3) Prerequisite: ECON325 and ECON326 with a grade of 'C' (2.0) or better (or ECON305 and ECON306 by permission of department). For ECON majors only. Not open to students who have completed ECON340. Credit will be granted for only one of the following: ECON340 or ECON441. Theoretical treatment of international trade and international finance. Includes Ricardian and Heckscher-Ohlin theories of comparative advantage, analysis of tariffs and other trade barriers, international factor mobility, balance of payments adjustments, exchange rate determination, and fiscal and monetary policy in an open economy.

ECON 442 Globalization and Capital Markets (3) Prerequisite: ECON325 and ECON326 with a grade of 'C' (2.0) or better (or ECON305 and ECON306 by permission of department). For ECON majors only. Credit will be granted for only one of the following: ECON398M or ECON442. Formerly ECON398M. Uses models of open-economy macroeconomics to explain the causes and consequences of international capital flows. Analysis is made of private consumption, investment, the government sector, current accounts, the labor market, and the money and foreign exchange markets in small open economies. This framework is then used to study examples of how speculative attacks on currencies, sudden reversals of capital inflows, and the effects of the lack of credibility of economic policy affect economic development.

ECON 451 Public Choice (3) Prerequisite: ECON326 with a grade of 'C' (2.0) or better (or ECON306 by permission of department). For ECON majors only. Analysis of collective decision making, economic models of government, program budgeting, and policy implementation; emphasis on models of public choice and institutions which affect decision making.

ECON 454 Public Finance and Public Policy (3) Prerequisite: ECON326 with a grade of 'C' (2.0) or better (or ECON306 by permission of department). For ECON majors only. Credit will be granted for only one of the following: ECON350 or ECON454. Study of welfare economics and the theory of public goods, taxation, public expenditures, benefit-cost analysis, and state and local finance. Applications of theory to current policy issues.

ECON 456 Law and Economics (3) Prerequisite: ECON326 with a grade of 'C' (2.0) or better (or ECON306 by permission of department). For ECON majors only. Relationship of the exchange process to the system of institutions and rules that society develops to carry out economic transactions. Topics covered include: Property rights; torts, negligence, and liability; contracts and exchanges; criminal control and enforcement; equity issues in the rule and market environment.

ECON 457 Economics of the Gambling Industry (3) Prerequisite: ECON326 (or ECON306 by permission of department), ECON321 (or STAT400), and MATH140 with a grade of 'C' (2.0) or better. For ECON majors only. Analysis of basic economic issues related to the gambling industry. Topics will include: (i) structure and profitability of the gambling industry; (ii) public policy issues (distribution of the tax burden, addiction, government operation of lotteries); (iii) probabilistic and microeconomic elements of various games in play (lotteries, blackjack, keno, poker, sports gambling, etc) and related issues in strategic behavior; (iv) microeconomic similarities and distinctions between risky investment and gambling.

ECON 460 Industrial Organization (3) Prerequisite: ECON326 with a grade of 'C' (2.0) or better (or ECON306 by permission of department). For ECON majors only. Changing structure of the American economy; price policies in different industrial classifications of monopoly and competition in relation to problems of public policy.

ECON 461 Economics of Regulation and Anti-trust (3) Prerequisite: ECON326 with a grade of 'C' (2.0) or better (or ECON306 by permission of department). For ECON majors only. Credit will be granted for only one of the following: ECON398R or ECON461. Formerly ECON398R. Considers government intervention in economic activity of three types: antitrust policy, regulation of natural monopolies, and health safety regulation. Covers theoretical models, real-world policy applications, and empirical studies relevant to the impact of regulation.

ECON 465 Health Care Economics (3) Prerequisite: ECON326 with a grade of 'C' (2.0) or better (or ECON306 by permission of department). For ECON majors only. Analysis of health care, the organization of its delivery and financing. Access to care; the role of insurance; regulation of hospitals, physicians, and the drug industry; role of technology; and limits on health care spending.

ECON 470 Theory of Labor Economics (3) Prerequisite: ECON326 with a grade of 'C' (2.0) or better (or ECON306 by permission of department). For ECON majors only. Credit will be granted for only one of the following: ECON370 or ECON470. An analytical treatment of theories of labor markets. Marginal productivity theory of labor demand; allocation of time in household labor supply models; theory of human capital; earnings differentials; market structure and the efficiency of labor markets; the role of trade unions; discrimination; and unemployment.

ECON 480 Seminar in the New Economy (3) Prerequisites: ECON325 and ECON326; and permission of department. For ECON majors only. Credit will be granted for only one of the following: ECON398J or ECON480. Formerly ECON398J. Six research topics corresponding to the current research programs of different Economic Department faculty members will be examined. Students will be expected to prepare a short research paper on three of the topics.

ECON 481 Theory and Policy in Environmental Economics (3) Prerequisite: ECON326 with a grade of 'C' (2.0) or better (or ECON306 by permission of department). For ECON and ENSP majors only. Credit will be granted for only one of the following: ECON381 or ECON481. Formerly ECON381. Application of economic theory and empirical tools to the analysis of environmental issues. The concepts of externalities, public goods, property rights and cost-benefit analysis are applied to air pollution, water pollution, solid waste management, hazardous waste, and global warning. The optimal role and various tools of public policy are addressed.

EDCI -- Curriculum and Instruction

EDCI 280 Introduction to Teaching (3) Development of conceptual understanding of the teaching-learning process. Seminar to coordinate on-and off-campus experiences.

EDCI 288 Special Topics in Teacher Education (1-3) Prerequisite: permission of department. Repeatable to 6 credits if content differs.

EDCI 298 Special Problems in Teacher Education (1-6) Prerequisite: permission of department. Repeatable to 6 credits if content differs.

EDCI 300 Disciplined-Based Art Education Methods I (3) Three hours of lecture and three hours of laboratory per week. Prerequisites: admission to teacher education program; 2.5 GPA; permission of department. For art education majors only. EDCI300 is designed to provide prospective art teachers with a knowledge base of the theories and best practices which are relevant to effective pedagogy as well as current art education goals and standards. This course focuses on understanding and using research-based teaching techniques and strategies in planning, teaching and evaluating instruction in the K-12 classroom. Emphasis is placed on principles of effective instruction, classroom management, multiculturalism, thinking/questioning/problem solving skills and adaptation/modification of instruction for diverse student populations. Students will be encouraged to explore their understandings and beliefs about teaching (pedagogy) and learning.

EDCI 301 Teaching Art in the Elementary School (3) For elementary and pre-elementary education majors only. Not open to art education majors. Art methods and materials for elementary schools. Includes laboratory experiences with materials appropriate for elementary schools. Emphasis on emerging areas of art education for the elementary classroom teacher.

EDCI 320 Curriculum and Instruction in Secondary Education: Social Studies/ (3) History Prerequisites: admission to teacher education program; 2.5 GPA; Permission of department. For education majors only. Objectives, selection and organization of subject matter, appropriate methods, lesson plans, textbooks and other instructional materials, measurement and topics pertinent to social studies education. Includes emphasis on multi-cultural education.

EDCI 322 Curriculum and Instruction in Elementary Education: Social Studies (3) Prerequisites: admission to teacher education program; 2.5 GPA; EDCI397; and permission of department. Corequisites: EDCI342; EDCI352; EDCI362; and EDCI372. For elementary education majors only. Curriculum, organization and methods of teaching, evaluation of materials, and utilization of environmental resources. Emphasis on multicultural education. Includes laboratory/field experiences.

EDCI 330 Introduction to K-12 Foreign Language Methods and Technology (3) Prerequisites: 2.5 GPA; permission of department. For education majors only. Language acquisition; theory and best practice in teaching reading, listening, speaking and writing; national proficiency standards; authentic classroom assessment; technology and materials; planning lessons and curricula; classroom organization and management; learning disabilities. Focus on key models; content-based foreign language, FLES (foreign language in elementary schools), K-12 FLEX (foreign language exploratory), and immersion. School visitation and observation in elementary and middle school will be arranged.

EDCI 342 Curriculum and Instruction in Elementary Education: Language (3) Arts Prerequisites: admission to teacher education program; 2.5 GPA; EDCI397; and permission of department. Corequisites: EDCI322; EDCI352; EDCI362; and EDCI372. For elementary education majors only. Listening, oral communication, functional writing, creative writing, spelling, handwriting, and creative expression. Includes laboratory/field experiences.

EDCI 350 Curriculum and Instruction in Secondary Education: Mathematics (3) Prerequisites: admission to teacher education program; 2.5 GPA; permission of department; and six semester hours of 400-level mathematics courses. Corequisite: EDCI355. For education majors only. Objectives, selection and organization of subject matter, appropriate methods, lesson plans, textbooks and other instructional materials, measurement and topics. For pre-service mathematics teachers.

EDCI 352 Curriculum and Instruction in Elementary Education: Mathematics (3) Prerequisites: admission to teacher education program; 2.5 GPA; EDCI397; permission of department. Corequisites: EDCI322; EDCI342; EDCI362; and EDCI372. For elementary education majors only. Materials and procedures to help children sense arithmetical meanings and relationships. Development of an understanding of the number system and arithmetical processes. Includes laboratory/field experiences.

EDCI 355 Field Experience in Secondary Mathematics Education (1) Three hours of laboratory per week. Prerequisites: admission to teacher education program; 2.5 GPA; permission of department; and six semester hours of 400-level mathematics courses. For education majors only. Practical experience as an aide to a regular secondary mathematics teacher; assigned responsibilities and participation in a variety of teaching/learning activities.

EDCI 362 Curriculum and Instruction in Elementary Education: Reading (3) Prerequisites: admission to teacher education program; 2.5 GPA; EDCI397; and permission of department. Corequisites: EDCI322; and EDCI342; and EDCI352; and EDCI372. For elementary education majors only. Provide future elementary school teachers with the understandings and strategies to plan effective reading instruction. Participants will: a) learn a variety of developmentally appropriate word recognition strategies; b) learn a variety of developmentally appropriate comprehension strategies to enhance student understanding and interpretation of text; c) learn how to implement a balanced literacy program; d) learn appropriate early identification and intervention strategies to assist students with different learning styles, and emerging literacy; and e) learn how to establish and maintain an organized classroom environment that fosters interests, motivation, and positive attitudes/perceptions about all aspects of literacy.

EDCI 372 Curriculum and Instruction in Elementary Education: Science (3) Prerequisites: admission to teacher education program; 2.5 GPA; EDCI397; and permission of department. Corequisites: EDCI322; EDCI342; EDCI352; EDCI362. For elementary education majors only. Objectives, methods, materials and activities for teaching science in the elementary school; emphasis on teaching strategies which help children learn the processes and concepts of science. Includes laboratory/field experiences.

EDCI 373 Practicum in Ceramics (3) Six hours of laboratory per week. For art education majors only. 3 semester hours. Junior standing. Not open to students who have completed a ceramic course. Credit will be granted for only one of the following: EDCI273 or EDCI373. Formerly EDCI273. A lecture/studio format designed to introduce the use of clay and ceramics in a wide variety of educational settings.

EDCI 375 Field Experience in Science Education (1) Corequisite: EDCI470. For science education majors only. This field experience course is designed to provide prospective teachers with knowledge of theory and best school practice relevant to effective pedagogy, current educational goals, and trends in educational assessment in a public school environment. Topics includes planning, instructional delivery, diversity and individual differences, classroom management, technology, and inclusion of students with special needs.

EDCI 385 Computers for Teachers (3) Prerequisites: admission to teacher education program; and 2.5 GPA. For education majors only. A first-level survey of instructional uses of computers, software, and related technology for preservice teachers.

EDCI 386 Experiential Learning (3-6) Prerequisite: permission of department. Junior standing.

EDCI 397 Principles and Methods of Teaching in Elementary Schools (3) Prerequisites: admission to teacher education program and 2.5 GPA. For education majors only. Teaching strategies, classroom interactive techniques, and procedures for planning and evaluating instruction in elementary schools. Emphasis on principles of effective instruction, classroom management, and adaptation of instruction for various student populations.

EDCI 400 Field Experience in Art Education (1) Four hours of laboratory per week. Prerequisites: permission of department. For Art Education majors. Practical classroom experience in teaching/evaluating/exhibiting the products of art lessons.

EDCI 401 Student Teaching in Elementary School: Art (4-8) Prerequisites: admission to teacher education program; 2.5 GPA; permission of department; and EDCI300. For art education majors only.

EDCI 402 Student Teaching in Secondary Schools: Art (2-8) Prerequisites: admission to teacher education program; 2.5 GPA; permission of department; EDCI300. For art education majors only.

EDCI 403 Teaching Art Criticism and Aesthetics (3) Three hours of discussion/recitation per week. For art education majors only. Prerequisite: admission to teacher education program; 2.5 GPA; ARTH200 and ARTH201. Introduction to the teaching of art criticism and aesthetics in K-12 art education programs. Trips to galleries and museums.

EDCI 404 Student Teaching Seminar: Art Education (3) Prerequisite: Admission to Teacher Education Program; 2.5 GPA: and EDCI300, EDCI400, EDCI405. Corequisite: EDCI401 and EDCI402. For art education majors only. An analysis of teaching theories, strategies, and techniques in the student teaching experience.

EDCI 405 Art Education Methods I (3) Two hours of lecture and one hour of laboratory per week. Prerequisite: admission to teacher education program; 2.5 G.P.A.; and permission of department. For education majors only. Credit will be granted for only one of the following: EDCI300 or EDCI405. Formerly EDCI300. Methods I provides future art teachers with a knowledge base of the theories and best practices of effective pedagogy for: teaching methods and strategies, diversity, motivational techniques, classroom management, assessment and evaluation methods, and accommodating all students including those with special needs.

EDCI 406 Technology and Two-Dimensional Art (3) Two hours of laboratory and two hours of discussion/recitation per week. Prerequisite: admission to teacher education program; 2.5 GPA; ARTT210; and permission of department. Junior standing. A discussion/studio format used to develop skills, materials, resources and education strategies for using technology and two-dimensional art in K-12 programs.

EDCI 407 Practicum in Art Education: Three-Dimensional (3) For pre-art education and art education majors only. A lecture-studio course to develop skills, material resources, and educational strategies for three-dimensional projects in school settings.

EDCI 410 Methods I: K-12 Foreign Language Methods and Technology (3) Prerequisite: 2.5 G.P.A.; and permission of department. Not open to students who have completed EDCI330. Credit will be granted for only one of the following: EDCI330 or EDCI410. Formerly EDCI330. The first of two sequential courses required for achieving competence in teaching a foreign language. The sequel to this course is EDCI433 (Methods II) entitled: Advanced K-12 Foreign Language Methods and Technology. EDCI410 requires on-going examination of theories relevant to language acquisition. Students will also investigate the instructional methods that reflect those theories.

EDCI 411 Knowledge, Reasoning, and Learning in Science (3) Prerequisite: 2.5 GPA; and permission of department. Junior standing. Credit will be granted for only one of the following: EDCI370 or EDCI411. Formerly EDCI370. For prospective science teachers. Investigations of the nature of knowledge, reasoning, and learning in middle and secondary science. Readings from cognitive science and science education research; studies of student thinking in interview and classroom observations; analyses of curricula. Includes laboratory and field experiences.

EDCI 412 Learning and Teaching in Science (3) Prerequisite: admission to teacher education program; and 2.5 GPA; and EDCI469. For prospective science teachers. Studies of student learning and instructional practices in science. Readings from current research in science education. Includes laboratory/field experiences.

EDCI 416 Curriculum and Instruction in Secondary Education: English Speech (3) Theatre Prerequisites: admission to teacher education program; 2.5 GPA; and permission of department. Credit will be granted for only one of the following: EDCI340 or EDCI416. Formerly EDCI340. An introduction for prospective middle and secondary English teachers into the basic issues, concepts, orientations, and processes that shape the teaching of English for diverse students in schools. Candidates explore their own perspectives in relation to local and national trends and develop basic teaching understanding and skills through on-campus seminars, teaching laboratory experiences, and guided field experiences.

EDCI 417 Bases for English Language Instruction (3) Two hours of lecture and 1/2 day field placement per week. Prerequisite: admission to teacher education program; EDHD413; and EDHD420. Provides students with knowledge of current theory, research, and pedagogy focused on the teaching of English to English language learners. Topics include morphology, syntax, semantics, vocabulary, pragmatics, arguments, discourse structure, and English language usage. Exceptional student, inclusion, and diversity issues will be considered.

EDCI 420 Student Teaching Seminar in Secondary Education: Social Studies (1) Prerequisite: 2.5 GPA; and EDCI426 and EDCI427. Corequisite: EDCI421 or EDCI422. An analysis of teaching theories, strategies, and techniques in the student teaching experience.

EDCI 421 Student Teaching in Secondary Schools: Social Studies/History (12) Prerequisites: admission to teacher education program; 2.5 GPA; permission of department. Corequisite: EDCI420.

EDCI 422 Student Teaching in Secondary Schools: Social Studies/Geography (12) Prerequisite: EDCI321. Corequisite: EDCI420.

EDCI 423 Art Education Methods II (3) Prerequisite: admission to teacher education program; 2.5 G.P.A.; and EDCI405 or equivalent. Corequisite: EDCI400. For art education majors only. Methods II builds upon the pedagogical foundation of Methods I and provides future art teachers with the means for developing pre K-12 art lessons and unit plans for a balanced qualitative art program for today's diverse and inclusive schools and classrooms.

EDCI 426 Materials and Resources in Social Studies (3) Prerequisite: permission of department and 2.5 GPA. The course will emphasize the identification, appropriate selection, implementation and assessment of materials and resources that promote social studies instruction that is theory based for multiple settings.

EDCI 427 Curriculum and Instruction in Secondary Education: Social Studies (3) and History Prerequisites: admission to teacher education program; 2.5 GPA; permission of department; EDHD413 and EDHD420. Corequisite: EDCI428. For education majors only. Credit will be granted for only one of the following: EDCI320 or EDCI427. Formerly EDCI320. Objectives, selection and organization of subject matter, appropriate methods, lesson plans, textbooks and other instructional materials, measurement and topics pertinent to social studies education. Includes emphasis on multi-cultural education.

EDCI 428 Field Experience in Secondary Social Studies Teaching (1) Three hours of laboratory per week. Prerequisites: admission to teacher education program; 2.5 GPA; and permission of department. Corequisite: EDCI427. For education majors only. Practical experience as an aide to a regular social studies teacher; assigned responsibilities and participation in a variety of teaching/learning activities.

EDCI 430 Student Teaching Seminar in Secondary Education: Foreign Language (1) Prerequisite: 2.5 GPA; and EDCI410; and EDCI433. Corequisite: EDCI431. An analysis of teaching theory, strategies and techniques in the student teaching experience.

EDCI 431 Student Teaching in Secondary Schools: Foreign Language (12) Prerequisites: admission to teacher education program; and 2.5 GPA; and permission of department; and EDCI330. Corequisite: EDCI430.

EDCI 432 Issues in the Education of English Language Learners (3) Credit will be granted for only one of the following: EDCI432 or EDCI488Q. Formerly EDCI488Q. Analysis of current research, practice, trends, and public policy issues in education as they relate to English language learners in K-12 settings.

EDCI 433 Advanced K-12 Foreign Language Methods and Technology (3) Prerequisites: EDCI330, EDHD413, EDHD420 and permission of department. Corequisite: EDCI438. For EDCI majors only. Teaches advanced best practices for effective foreign language instruction. Topics include: using authentic assessment and materials, applying national standards, teaching writing and culture, motivating students, providing strategy instruction, infusing technology, preparing for K-12 employment, and creating a professional portfolio. Field experience (in co-requisite EDCI438) focuses on middle and high school.

EDCI 434 Pedagogy of Teaching English Language Learners (3) A survey of the historical and current approaches, methods, and techniques of teaching English to speakers of other languages from grammar translation to audio-lingual to communicative approaches. Additionally, successful classroom practices that address the needs of culturally diverse and language minority students will be analyzed.

EDCI 435 Teaching English Language Learners Reading and Writing in the (3) Secondary Content Areas Analysis of approaches to curriculum, current research, theory, and pedagogy of reading and writing to second language students from diverse cultural and linguistic backgrounds. State Approved. Required for TESOL certification program.

EDCI 436 Understanding Cross-Cultural Communication for Teaching English (3) Language Learners Credit will be granted for only one of the following: EDCI436 or EDCI488T. Formerly EDCI488T. Understanding cultural issues in English Language Learner classes; techniques and resources for addressing such issues.

EDCI 437 English Grammar Pedagogy for Teachers of English Language Learners (3) Credit will be granted for only one of the following: EDCI437 or EDCI488P. Formerly EDCI488P. Methods of teaching English grammar to English language learners. The role of teaching grammar. Effective methods and techniques for incorporating grammar in other communication activities.

EDCI 438 Field Experience in Second Language Education (1) Four hours of laboratory per week. Prerequisites: permission of department. Corequisite: EDCI330. For Second Language Education majors only. Repeatable to 3 credits if content differs. Practical experience as an aide to a regular foreign language teacher; assigned responsibilities and participation in a variety of teaching/learning activities.

EDCI 440 Student Teaching Seminar in Secondary Education: English, Speech, (1) Theatre Prerequisites: admission to teacher education program; 2.5 GPA; EDCI417. Corequisite: EDCI441. An analysis of teaching theories, strategies and techniques in relation to the student teaching experience.

EDCI 441 Student Teaching in Secondary Schools: English (12) Prerequisites: admission to teacher education program; and EDCI417. Corequisite: EDCI440. Practical experience as an aide to a regular English, speech or drama teacher; assigned responsibilities and participation in a variety of teaching/learning activities.

EDCI 442 Student Teaching in Secondary Schools: Speech/English (12) Prerequisites: admission to teacher education program; and EDCI417. Corequisite: EDCI440. Practical experience as an aide to a regular English, speech or drama teacher; assigned responsibilities and participation in a variety of teaching/learning activities.

EDCI 443 Literature for Children and Youth (3) For elementary education and pre-elementary education majors only. Analysis of literary materials for children and youth. Timeless and ageless books, and outstanding examples of contemporary publishing. Evaluation of the contributions of individual authors, illustrators and children's book awards.

EDCI 446 Methods of Teaching English, Speech, Theatre in Secondary Schools (3) Prerequisites: permission of department. Objectives, selection and organization of subject matter, appropriate methods, lesson plans, textbooks and other instructional materials, measurement and topics pertinent to English, speech, and drama education. For in-service teachers.

EDCI 447 Field Experience in English, Speech, Theatre Teaching (1) Prerequisites: admission to teacher education program; 2.5 GPA. Corequisite: EDCI417. For education majors only. Practical experience as an aide to a regular English, speech or drama teacher; assigned responsibilities and participation in a variety of teaching/learning activities.

EDCI 448 Student Teaching in Secondary Schools: Theatre/English (12) Prerequisites: admission to teacher education program; and EDCI417. Corequisite: EDCI440. Practical experience as an aide to a regular English, speech or drama teacher; assigned responsibilities and participation in a variety of teaching/learning activities.

EDCI 450 Student Teaching Seminar in Secondary Education: Mathematics (1) Prerequisites: admission to teacher education program; 2.5 GPA; EDCI457; and EDCI455 or EDCI651. Corequisite: EDCI451 and EDCI474.. An analysis of teaching theories, strategies and techniques in the student teaching experience.

EDCI 451 Student Teaching in Secondary Schools: Mathematics (12) Prerequisites: admission to teacher education program; 2.5 GPA; permission of department. Corequisite: EDCI450.

EDCI 455 Methods of Teaching Mathematics in Secondary Schools (3) Prerequisite: 2 semesters of calculus. Objectives, selection and organization of subject matter, appropriate methods, lesson plans, textbooks and other instructional materials, measurement, and topics pertinent to mathematics education.

EDCI 457 Teaching and Learning Middle School Mathematics (3) Two hours of lecture and two hours of laboratory per week. Prerequisites: admission to teacher education program or permission of department; 2.5 GPA; and permission of department for post-baccalaureate students. Methods of teaching and assessing the middle school mathematics curriculum. Understanding the conceptual difficulties students have in moving from whole numbers to rational numbers, additive thinking to multiplicative thinking, and arithmetic to algebra. Lesson planning and selection of technology and other materials are applied in the context of supervised tutoring of students having difficulty in middle school mathematics.

EDCI 460 Student Teaching: Elementary/Middle (15) Prerequisites: EDCI322; EDCI342; EDCI352; EDCI362; and EDCI372. For Elementary Education majors only. A field experience with eight weeks of student teaching at the elementary level and eight weeks at the middle school level.

EDCI 461 Materials and Instruction for Creating Skilled and Motivated (3) Readers, Part I Prerequisite: permission of department. For Elementary Education majors only. Junior standing. Selecting, evaluating, and using a variety of materials to create skilled and motivated readers in the elementary grades; Topics include emergent literacy, vocabulary development, reading comprehension and oral reading fluency in diverse classroom settings.

EDCI 462 Materials and Instruction for Creating Skilled and Motivated (3) Readers, Part II Prerequisite: admission to teacher education program; 2.5 GPA; EDCI361 or EDCI461; ED397; and permission of department. Corequisite: EDCI322, EDCI342, EDCI352, and EDCI372. Elementary Education majors only. Selecting, evaluating, and using a variety of materials to create skilled and motivated readers in the elementary grades, particularly in diverse classroom settings; Topics include word analysis, spelling, writing, reading comprehension strategies, directed reading lessons, and explicit instruction.

EDCI 463 Reading in the Secondary School (3) Prerequisites: admission to teacher education program; and 2.5 GPA; or permission of department required for post-baccalaureate students. For education majors only. Provides secondary school teachers with understanding the need for and approaches to teaching students to read and learn from content area texts.

EDCI 464 Assessment for Reading (3) Prerequisite: EDCI362. For Elementary Education or Early Childhood Education majors only. Senior standing. Examination of reading assessment theory, materials and procedures; Topics include validity and reliability in reading assessment, formal and informal assessment, reading instruction that is informed by ongoing assessment, and the effects of assessment on students and schooling in a diverse society.

EDCI 466 Literature for Adolescents (3) Prerequisites: admission to teacher education program; 2.5 GPA. permission of department required for post-baccalaureate students. For education majors only. Reading and analysis of fiction and nonfiction; methods for critically assessing quality and appeal; current theory and methods of instruction; research on response to literature; curriculum design and selection of books.

EDCI 467 Teaching Writing (3) Prerequisite: permission of department. Sources and procedures for developing curriculum objectives and materials for teaching written composition; prewriting, composing, and revision procedures; contemporary directions in rhetorical theory; survey of research on composition instruction.

EDCI 470 Learning and Teaching in Science (3) Prerequisites: Admission to the Science Education Program and EDCI411 or permission of instructor. Studies of student learning and instructional practices in science teaching.

EDCI 471 Student Teaching in Secondary Schools: Science (12) Prerequisites: admission to teacher education program; 2.5 GPA; permission of department; and EDCI370. Corequisites: EDCI371 and EDCI470.

EDCI 472 Methods of Teaching Science in Secondary Schools (3) Prerequisite: permission of department. Methods for classroom and laboratory instruction, determining appropriate teaching methods, selecting instructional materials, evaluating student achievement. Includes lab and field experience. For in-service teachers.

EDCI 473 Environmental Education (3) Two hours of lecture and three hours of laboratory per week. An interdisciplinary course covering the literature, techniques and strategies of environmental education.

EDCI 474 Inclusion, Diversity, and Professionalism in Secondary Education (2) Prerequisite: admission to teacher education. Corequisite: enrolled in student teaching/certification area. For secondary education majors only. Cross disciplinary capstone course for Secondary Education majors. Discussion and analysis of critical issues relevant to teaching: inclusion, diversity, professionalism, English language learners, school politics, social justice, school-community relations, and parent engagement.

EDCI 480 Practices in Secondary School Science Teaching (2) Prerequisite: Admission to teacher education program; EDCI470. Corequisite: EDCI471. Not open to students who have completed EDCI488J. Credit will be granted for only one of the following: EDCI480 or EDCI488J. Formerly EDCI488J. For prospective science teachers. Analyses of student thinking, instructional interpretations, strategies, and techniques in student teaching.

EDCI 481 Student Teaching: Elementary (12) Prerequisites: admission to teacher education program; 2.5 GPA; permission of department; EDCI322; and EDCI342; EDCI352; EDCI362; and EDCI372. Corequisite: EDCI464.

EDCI 484 Student Teaching in Elementary School: Music (4-6) Prerequisites: admission to teacher education program; 2.5 GPA; permission of department; MUED411; MUED420; MUED470; MUED471; and MUED472. Corequisite: EDCI494. Fulfills elementary teaching requirements in K-12 music education programs.

EDCI 485 Student Teaching in Elementary School: Physical Education (4-8) For EDCI majors only. Fulfills elementary teaching requirements in K-12 physical education programs.

EDCI 488 Selected Topics in Teacher Education (1-3) Prerequisite: EDCI major or permission of department. Repeatable to 6 credits if content differs.

EDCI 489 Field Experiences in Education (1-4) Prerequisite: permission of department. Corequisite: EDCI497. Repeatable to 4 credits.

EDCI 494 Student Teaching in Secondary Schools: Music (2-8) For EDCI majors only.

EDCI 495 Student Teaching in Secondary Schools: Physical Education (2-8) For EDCI majors only.

EDCI 497 The Study of Teaching (3) Prerequisite: EDCI481. Corequisite: EDCI489. Identification and examination of learner and teacher outcome variables related to teaching systems, methods, and processes. Methods of conducting classroom research.

EDCI 498 Special Problems in Teacher Education (1-6) Prerequisite: permission of department. For EDCI majors only. Repeatable to 6 credits. Individual study of approved problems.

EDCI 499 Workshops, Clinics, and Institutes (1-6) Repeatable to 6 credits. The following types of educational enterprise may be scheduled under this course heading: workshops conducted by the College of Education (or developed cooperatively with other colleges and universities) and not otherwise covered in the present course listing; clinical experiences in pupil testing centers, reading clinics, speech therapy laboratories, and special education centers; institutes developed around specific topics or problems and intended for designated groups such as school superintendents, principals and supervisors.

EDCP -- Education Counseling and Personnel Services

EDCP 108 College and Career Advancement: Concepts and Skills (1) Repeatable to 3 credits if content differs. Knowledge and skills designed to enhance college as a learning experience or preparation for life.

EDCP 217 Introduction to Student Leadership (3) Freshmen and Sophomore standing. Credit will be granted for only one of the following: EDCP217 or EDCP317. Formerly EDCP317. Introduction to leadership theories, concepts, and skills. Completion of personal and leadership self-assessments, values exploration, and small group application.

EDCP 220 Introduction to Human Diversity in Social Institutions (3) This highly-interactive format focuses on individual and social identities in the U.S., group differences and intergroup relations, systems of privilege and oppression, and advocacy for social justice. Topics will include diversity related to race, ethnicity, gender, sexual orientation, social class, (dis)ability, and religion. Course fulfills CORE requirements in diversity, social/behavioral bases, and interdisciplinary study. Some sections restricted.

EDCP 298 Special Problems in Counseling and Personnel Services (1-3) Prerequisite: permission of department. Individual instruction in special problems related to counseling, student leadership, and college student development.

EDCP 310 Peer Counseling Theory and Skills (3) The theories and skills of peer helping relationships. Counseling theories and skills at a level appropriate for students seeking basic level training for use in peer counseling settings.

EDCP 312 Multi-Ethnic Peer Counseling (3) Prerequisite: undergraduate status. Sophomore standing. Formerly EDCP310A. Knowledge, skills, and attitude to function as peer helpers of Multi- Ethnic students.

EDCP 315 Student Leadership in Groups and Organizations (3) Recommended: EDCP217. Acquiring and integrating leadership knowledge within group and organizational contexts so that students can navigate organizational environments and apply leadership in diverse communities of practice and career contexts.

EDCP 318 Applied Contextual Leadership (3) Three hours of lecture and five hours of laboratory per week. Prerequisite: permission of department. Repeatable to 6 credits if content differs. Course will utilize experiential learning opportunities to develop and apply the knowledge and skills of leadership into specific contexts of leadership practice.

EDCP 325 Substance Use and Abuse in American Society (3) Incidence, etiology, effects and management of substance use and abuse from perspective of the individual, the family, and society.

EDCP 386 Experiential Learning (3-6) Prerequisite: permission of department. Junior standing.

EDCP 411 Principles of Mental Health (3) Prerequisite: nine semester hours in the behavioral sciences or permission of department. Mechanisms involved with personal adjustment, coping skills, and the behaviors that lead to maladjustment.

EDCP 416 Theories of Counseling (3) An overview and comparison of the major theories of counseling, including an appraisal of their utility and empirical support.

EDCP 417 Advanced Leadership Seminar (3) Prerequisite: EDCP317 or equivalent; permission of department. Students will analyze and synthesize the concept of leadership using cultural, ethical, sociological, historical perspectives. Exploration and reflection of personal values, decision making, in-depth analysis on various leadership activities. Theories will be emphasized.

EDCP 418 Special Topics in Leadership (3) Prerequisite: EDCP317 or equivalent; permission of department. Repeatable to 6 credits if content differs. The special topics and leadership course will address a single topic related to leadership through the semester. In-depth study and analysis on the topic will be the basis for the course. Topics include gender and leadership, ethics and leadership, and culture and leadership. Leadership will serve as the foundation in the course.

EDCP 420 Advanced Topics in Human Diversity and Advocacy (3) Prerequisite: permission of department. This course will build upon students' knowledge of diversity in American society and will examine contemporary topics related to multiculturalism in educational and community contexts as well as strategies for advocacy in such venues. This course fulfills CORE requirements in diversity.

EDCP 460 Introduction to Rehabilitation Counseling (3) Survey of principles and practices involved in the vocational rehabilitation of persons with disabilities.

EDCP 461 Psycho-Social Aspects of Disability (3) Theory and research concerning disability, with emphasis on crisis theory, loss and mourning, handicapped as a deviant group, sexuality and functional loss, attitude formation, dying process and coping. Implications for counseling and the rehabilitation process.

EDCP 462 Disability in American Society (3) Prerequisite: undergraduate status. 30 semester hours. Critical examination of the history of discrimination and analysis of current policies toward people with severe physical and mental disabilities.

EDCP 470 Introduction to Student Personnel (3) Prerequisite: permission of department. A systematic analysis of research and theoretical literature on a variety of major problems in the organization and administration of student personnel services in higher education. Included will be discussion of such topics as the student personnel philosophy in education, counseling services, discipline, housing, student activities, financial aid, health, remedial services, etc.

EDCP 489 Field Experiences in Counseling and Personnel Services (1-4) Prerequisite: permission of department. Planned field experience in education-related activities. Credit not to be granted for experiences accrued prior to registration.

EDCP 498 Special Problems in Counseling and Personnel Services (1-3) Prerequisite: permission of department. Available only to major students who have formal plans for individual study of approved problems.

EDCP 499 Workshops, Clinics, Institutes (1-6) Repeatable to 6 credits. The following type of educational enterprise may be scheduled under this course heading: workshops conducted by the Department of Counseling and Personnel Services (or developed cooperatively with other departments, colleges and universities) and not otherwise covered in the present course listing; clinical experiences in counseling and testing centers, reading clinics, speech therapy laboratories, and special education centers; institutes developed around specific topics or problems and intended for designated groups.

EDHD -- Education, Human Development

EDHD 210 Foundations of Early Childhood Education (3) Corequisite: EDHD220. An overview of historical, philosophical, psychological, and contemporary influences on the field of early childhood education.

EDHD 220 Exploring Teaching in Early Childhood Education (3) Corequisite: EDHD210. Practicum with preschool children at the Center for Young Children, University lab school, and other preschools. Students reflect on personal strengths, identify areas of growth, and examine their predisposition to teach.

EDHD 222 Literature in the Early Childhood Classroom (3) For early childhood education majors only. Credit will be granted for only one of the following: EDCI443A or EDHD222. Introduces students to the realm of literature for young children. Through studying, reading, listening to and using books and poems, students develop an understanding about qualities in literature that are meaningful to children.

EDHD 230 Human Development and Societal Institutions (3) Development of the individual in the context of relationships with the formal and informal institutions of society. An examination of various aspects of development from the broad perspective of the social sciences.

EDHD 285 Designing Multimedia Computer Environments for Learners (3) For early childhood majors only.

Freshman standing. A focus on the application of new computer technologies for learners in an educational setting. Topics to be explored: understanding the learner as a technology user, defining learning outcomes to be supported by technology, differing approaches to the technology design process and methods of technology integration in the classroom.

EDHD 306 Research Methods in Human Development (3) Addresses the scientific concepts and principles central to the study of human behavior and development. Students will learn about basic research methods in studying human behavior in developmental context and will participate in experiential activities, such as conducting observations and collecting self-report data. Major themes: goals of developmental research, fundamental research designs, types of measurement, elements of good scientific writing, and ethical issues in the study of human development.

EDHD 313 Creative Experiences for Young Children (3) Prerequisites: admission to teacher education program; 2.5 GPA; permission of department; EDCI280. For early childhood majors only. Credit will be granted for only one of the following: EDHD313 or EDCI313. Formerly EDCI313. Provides preservice teachers with an understanding of the current research on the development of creativity and integration of the arts into an early childhood classroom. Resident artists from the Wolf Trap Company will give demonstration lesson in music, art, movement and dance.

EDHD 314 Reading in Early Childhood Classroom: Instructions and Materials (3) Part I For early childhood majors only. This course introduces early childhood students to current research and methods on teaching reading.

EDHD 315 Reading in Early Childhood Classroom: Instruction and Materials (3) Part II Prerequisite: EDHD314. For early childhood majors only. This course builds on the theories and teaching strategies of EDHD314. Students will focus on teaching of reading and writing to primary grade students.

EDHD 319 Selected Topics in Human Development (3) Repeatable to 6 credits if content differs. Selected topics in human development in relation to contemporary culture.

EDHD 320 Human Development Through the Life Span (3) Central concepts related to parameters of human development, individual and social, which arise throughout the life span. Continuity and change within the developing individual.

EDHD 321 The Young Child as Scientist (2) Prerequisites: EDHD424, EDHD419, EDHD313, EDHD314, EDSP470. Corequisites: EDHD427, EDHD322, EDHD323, EDHD315, EDHD435. For early childhood majors only. Senior standing. Provides theoretical and practical knowledge for teaching science in early childhood classrooms. Appropriate teaching strategies and materials of instruction are presented for diverse settings. Includes field experience.

EDHD 322 The Young Child as Mathematician (3) Prerequisites: EDHD424, EDHD419, EDHD313, EDHD314, EDSP470. Corequisites: EDHD427, EDHD321, EDHD323, EDHD315, EDHD435. For early childhood majors only. Senior standing. Engages early childhood education majors in mathematics as a creative process and dynamic way of thinking. Throughout this process students will acquire the pedagogical knowledge important to teaching mathematics in grades pre-K through 3. Includes field experience.

EDHD 323 Children Study Their World (2) Prerequisites: EDHD424, EDHD419, EDHD313, EDHD314, EDSP470. Corequisites: EDHD427, EDHD321, EDHD322, EDHD315, EDHD435. For early childhood majors only. Senior standing. Provides a theoretical framework for pre-service teachers to understand and implement a developmentally appropriate social studies curriculum. The focus will be on methods of implementing theories of child development and curriculum, which foster higher level thinking skills in young children. Includes field experience.

EDHD 386 Experiential Learning (3-6) Prerequisite: permission of department. Junior standing.

EDHD 400 Introduction to Gerontology (3) Multidisciplinary survey of the processes of aging. Physiological changes, cultural forces, and self-processes that bear on quality of life in later years. Field study of programs, institutions for elderly, individual elders, their families and care providers.

EDHD 401 Promoting Optimal Aging (3) Prerequisite: EDHD320, or EDHD400, or permission of department. Also offered as EDHD641. Credit will be granted for only one of the following: EDHD401 or EDHD641. Theoretical, research, and applied issues related to optimal aging from psychological, biological, and societal perspectives. Group or individual projects involving direct field experiences.

EDHD 411 Child Growth and Development (3) Theoretical approaches to and empirical studies of physical, psychological and social development from conception to puberty. Implications for home, school and community.

EDHD 413 Adolescent Development (3) Adolescent development, including special problems encountered in contemporary culture. Observational component and individual case study.

EDHD 415 Social Competence in Young Children (3) For early childhood majors only. Junior standing. Students will discuss issues and topics relevant to the study of children's social competence, peer interactions, relationships, and groups. Includes field experience.

EDHD 417 Laboratory in Behavior Analysis (3) Prerequisite: EDHD416. Continuation of analysis of field observations; emphasis on cognitive processes, motivation, self-concept, attitudes and values.

EDHD 419 Human Development and Learning in School Settings (3) Prerequisite: permission of department. Repeatable to 6 credits if content differs. Advanced study of human development and learning in different phases of school program over a period of time.

EDHD 420 Cognitive Development and Learning (3) Prerequisite: either EDHD300, EDHD320, EDHD411, PSYC355, PSYC341 or permission of department. Current developmental theories of cognitive processes such as language, memory, and intelligence and how differences in cognitive level (infancy through adolescence) mediate learning of educational subject matters.

EDHD 424 Culture and Community Perspectives: The Diverse World of the (3) Child Corequisites: EDHD314, EDHD419, EDHD313, EDSP470. For early childhood majors only. Junior standing. Explores the development of the young child in the context of family and community, with particular emphasis on the impact of state, federal and school system policy on the child's world.

EDHD 425 Language Development and Reading Acquisition (3) Two hours of lecture and one hour of discussion/recitation per week. This course focuses on young children's language development and the relationship between language and reading acquisition. Students will learn: concepts central to language development; language achievements at different ages; concepts of emergent literacy; models of reading acquisition and skilled reading.

EDHD 426 Cognition and Motivation in Reading: Reading in Content Areas (3) I Students preparing for secondary teaching will learn the cognitive and motivational aspects of reading and learning from text in subjects of literature, science, history and mathematics. Different structured approaches to using text for content learning are presented. Classroom contexts that enable students to engage productively with diverse texts and internet resources are identified.

EDHD 427 Constructing and Integrating the Early Childhood Curriculum (3) Prerequisites: EDHD424, EDHD313, EDHD314, EDSP470. Corequisites: EDHD323, EDHD321, EDHD322, EDHD315, EDHD435. For early childhood majors only. Senior standing. Explores the world from the child's perspective and constructs curriculum based on cognition, learning, and children's experiences. The integrated curriculum is the overarching framework for this course. Includes field experience.

EDHD 430 Adolescent Violence (3) Prerequisite: PSYC100 or permission of department. Examines the roots of violence among adolescents and the extent to which this constitutes a problem in various settings. Research studies on its origins, prevention and intervention and implications for social policy are examined.

EDHD 432 Student Teaching Pre-K-3 (12) Prerequisites: EDHD427, EDHD321, EDHD322, EDHD323, EDHD435. Corequisite: EDCI464. For early childhood majors only. Senior standing. Not open to students who have completed EDHD421, EDHD422 and EDHD423. Credit will be granted for only one of the following: EDHD421, EDHD422, and EDHD423; or EDHD432.

EDHD 435 Effective Components of the Early Childhood Classroom (3) Prerequisites: EDHD314, EDHD424, EDHD419, EDHD313, EDHD314, EDSP470. Corequisites: EDHD427, EDHD321, EDHD322, EDHD323, EDHD315. For early childhood majors only. Senior standing. Explores three topics integral to effective, child-centered early childhood classrooms: assessment, classroom management and parent involvement. Includes field experience.

EDHD 445 Guidance of Young Children (3) Prerequisite: PSYC100 or permission of department. Practical aspects for helping and working with children, drawing on research, clinical studies, and observation. Implications for day care and other public issues.

EDHD 460 Educational Psychology (3) Prerequisite: PSYC100 or permission of department. Application of psychology to learning processes and theories. Individual differences, measurement, motivation, emotions, intelligence, attitudes, problem solving, thinking and communicating in educational settings. (May not be substituted for EDHD300 by students in professional teacher education programs.)

EDHD 489 Field Experiences in Education (1-4) Prerequisite: permission of department. Repeatable to 4 credits. Planned field experience in education-related activities. Credit not to be granted for experiences accrued prior to registration.

EDHD 498 Special Problems in Education (1-3) Prerequisite: permission of department. Available only to students who have definite plans for individual study of approved problems.

EDHD 499 Workshops, Clinics, and Institutes (1-6) Repeatable to 6 credits. The following types of educational enterprise may be scheduled under this course heading: workshops conducted by the College of Education (or developed cooperatively with other colleges and universities) and not otherwise covered in the present course listing; clinical experiences in pupil-testing centers, reading clinics, speech therapy laboratories, and special education centers; institutes developed around specific topics or problems and intended for designated groups such as school superintendents, principals and supervisors.

EDHI -- Education Leadership, Higher Ed and International Ed

EDHI 288 Special Problems in Education (1-6) Prerequisite: permission of department. Formerly EDPL288. Available only to freshmen and sophomore students who have definite plans for individual study of approved problems relative to their preparation for teaching.

EDHI 338 Teaching and Learning about Cultural Diversity through Intergroup (1-3) Dialogue Prerequisite: Completion of on-line registration form. Repeatable to 6 credits if content differs. Formerly EDPL288. Engages students, from one or more cultural identity groups, in facilitated dialogue about the similarities and differences of experience that exist within a group and/or between and across groups. The goal of intergroup dialogue is for students to develop comfort with, and skill for, discourse on difficult topics toward the end of fostering positive, meaningful, and sustained cross-group relationships. Whereas in debate, students learn to listen to gain advantage, in intergroup dialogue, students learn to listen to gain understanding. In so doing, students develop increased multicultural interaction facility, heightened intergroup awareness and sensitivity, and greater commitment to civic engagement.

EDHI 488 Special Topics in Education Policy and Administration (1-3) Prerequisite: permission of department. Repeatable to 6 credits. Formerly EDPL488. Special and intensive treatment of current topics and issues in education policy and administration.

EDHI 489 Field Experiences in Education (1-4) Prerequisite: permission of department. Formerly EDPL489. Planned field experience in education-related activities. Credit not to be granted for experiences accrued prior to registration.

EDHI 498 Special Problems in Education (1-3) Prerequisite: permission of department. Formerly EDPL498. Available only to students who have definite plans for individual study of approved problems.

EDHI 499 Workshops, Clinics, and Institutes (1-6) Repeatable to 6 credits. Formerly EDPA499. The following type of educational enterprise may be scheduled under this course heading: Workshops conducted by the College of Education (or developed cooperatively with other colleges and universities) and not otherwise covered in the present course listing; clinical experiences in pupil-testing centers, reading clinics, speech therapy laboratories, and special education centers; institutes developed around specific topics or problems and intended for designated groups such as school superintendents, principals, and supervisors.

EDMS -- Measurement, Statistics, and Evaluation

EDMS 410 Classroom Assessment (3) Junior standing. Developing and using classroom assessments, including tests, performance assessments, rating scales, portfolios, observations and oral interactions; basic psychometric statistics; standard setting; grading; communicating assessment information; testing ethics; locating and evaluating measures; program evaluation and classroom research; assessments used for educational policy decisions.

EDMS 451 Introduction to Educational Statistics (3) Sophomore standing. Credit will be granted for only one of the following: BIOM301, BMGT230, ECON321, EDMS451, GEOG305, GVPT422, PSYC200, or SOCY201. Introduction to statistical reasoning; location and dispersion measures; computer applications; regression and correlation; formation of hypotheses tests; t-test; one-way analysis of variance; analysis of contingency tables.

EDMS 489 Field Experiences in Measurement and Statistics (1-4) Prerequisite: permission of department. Repeatable to 4 credits. Planned field experience in education-related activities. Credit not to be granted for experiences accrued prior to registration.

EDMS 498 Special Problems in Measurement and Statistics (1-3) Prerequisite: permission of department. Repeatable to 6 credits. Available only to education majors who have formal plans for individual study of approved problems.

EDPS -- Education Policy Studies

EDPS 201 Education in Contemporary American Society (3) Credit will be granted for only one of the following: EDPL201 or EDPS201. Formerly EDPL201. An examination of the relationship between education and the social environment in contemporary American society. Issues of equality or equal opportunity, individual and cultural differences, education outside of schools, the control of education, and the future of education.

EDPS 210 Historical and Philosophical Perspectives on Education (3) Credit will be granted for only one of the following: EDPL210 or EDPS210. Formerly EDPL210. An examination of illustrative historical and philosophical examples of the interplay of ideas and events in the shaping of educational aims and practices from ancient cultures to modern technological societies.

EDPS 288 Special Problems in Education (1-6) Prerequisite: permission of department. Formerly EDPL288. Available only to freshmen and sophomore students who have definite plans for individual study of approved problems relative to their preparation for teaching.

EDPS 301 Foundations of Education (3) Credit will be granted for only one of the following: EDPL301 or EDPS301. Formerly EDPL301. Social context of education and conflicts over philosophies, values, and goals that are reflected in educational institutions in our pluralistic society. Helps teachers become reflective, critical thinkers about the social and philosophical issues they face and the choices they make.

EDPS 310 Foundations of Education (3) Credit will be granted for only one of the following: EDPL301 or EDPS301. Formerly EDPL301. Social context of education and conflicts over philosophies, values, and goals that are reflected in educational institutions in our pluralistic society. Helps teachers become reflective, critical thinkers about the social and philosophical issues they face and the choices they make.

EDPS 401 Educational Policy, and Social Change (3) Credit will be granted for only one of the following: EDPL401 or EDPS401. Formerly EDPL401. An examination of education policy in relation to the social environment and change. Contemporary education and social issues are examined, including technology as a complex force which influences social change. This is a Social Foundations course.

EDPS 488 Special Topics in Education Policy and Administration (1-3) Prerequisite: permission of department. Formerly EDPL488. Special and intensive treatment of current topics and issues in education policy and administration.

EDPS 489 Field Experiences in Education (1-4) Prerequisite: permission of department. Formerly EDPL489. Planned field experience in education-related activities. Credit not to be granted for experiences accrued prior to registration.

EDPS 498 Special Problems in Education (1-3) Prerequisite: permission of department. Formerly EDPL498. Available only to students who have definite plans for individual study of approved problems.

EDPS 499 Workshops, Clinics, and Institutes (1-6) Formerly EDPL499. The following type of educational enterprise may be scheduled under this course heading: Workshops conducted by the College of Education (or developed cooperatively with other colleges and universities) and not otherwise covered in the present course listing; clinical experiences in pupil-testing centers, reading clinics, speech therapy laboratories, and special education centers; institutes developed around specific topics or problems and intended for designated groups such as school superintendents, principals, and supervisors.

EDSP -- Education, Special

EDSP 210 Introduction to Special Education (3) Class Standing: Freshman or Sophomore or permission of department. Not open to students who have completed EDSP470. Credit will be granted for only one of the following: EDSP210 or EDSP470. Characteristics and needs of individuals receiving special education and related services. Current issues and practices in special education.

EDSP 288 Special Topics in Teacher Education (1-3) Prerequisite: major in education or permission of department. Repeatable to 6 credits if content differs.

EDSP 298 Special Problems in Teacher Education (1-6) Prerequisite: permission of department. Available only to freshmen and sophomore education majors who have definite plans for individual study of approved problems relative to their preparation for teaching. Credit according to extent of work.

EDSP 376 Fundamentals of Sign Language (3) Receptive and expressive skills in American Sign Language. Examination of the causes of deafness, characteristics of deaf education, and aspects of the culture of the deaf community.

EDSP 386 Experiential Learning (3-6) Prerequisite: learning proposal approved by the Office of Experiential Learning Programs, faculty sponsor, and student's internship sponsor. Junior standing.

EDSP 400 Functional Assessment and Instruction in Special Education (3) For EDSP or 0808P majors only. 3 semester hours. Also offered as EDSP602. Credit will be granted for only one of the following: EDSP400 or EDSP602. Functional assessment procedures and instructional methods for students with severe disabilities from birth to adulthood.

EDSP 402 Field Placement: Severe Disabilities I (2-5) Pre- or corequisites: EDSP400 and EDSP404; or permission of department. Practicum experience in settings serving severely disabled individuals. Enrollment limited to those admitted to severely handicapped specialty area. Field placement for two to five half-days per week.

EDSP 403 Instructions of Students with Physical Disabilities (3) For EDSP or 0808P majors only. Also offered as EDSP603. Credit will be granted for only one of the following: EDSP403 or EDSP603. Assessment, curriculum, and instruction for students with physical disabilities. Focus on etiology, environmental and learning adaptations, and assistive technology.

EDSP 404 Education of Students with Autism (3) Pre- or corequisites: {EDSP400 and EDSP402} or permission of department. Also offered as EDSP604. Credit will be granted for only one of the following: EDSP404 or EDSP604. Characteristics, needs, assessment, and educational methods for students diagnosed as autistic.

EDSP 405 Field Placement: Severe Disabilities II (2-5) Prerequisite: EDSP402 or permission of department. Pre- or corequisites: EDSP403, and EDSP410; or permission of department. Practicum experience in settings serving severely disabled individuals. Field placement for two to five half-days per week.

EDSP 406 Field Placement I (1-3) Restricted to students with the following major codes: EDSP, and 0808P. Credit will be granted for only one of the following: EDSP322 or EDSP406. Formerly EDSP322. Practicum experience in special education.

EDSP 407 Field Placement II: Special Education (1-3) For EDSP or 0808P majors only. Credit will be granted for only one of the following: EDSP333 or EDSP407. Formerly EDSP333. Practicum experience in special education. Field placement for two-three half days.

EDSP 410 Functional Reading and Community Based Instruction (3) For EDSP or 0808P majors only. Also offered as EDSP614. Credit will be granted for only one of the following: EDSP410 or EDSP614. Functional assessment, curriculum, and instruction related to reading and community functioning skills for students with severe disabilities.

EDSP 413 Behavior and Classroom Management in Special Education (3) For EDSP or 0808P majors only. Also offered as EDSP613. Credit will be granted for only one of the following: EDSP321, EDSP413, or EDSP613.

Formerly EDSP321. Use of applied behavior analysis for assessment of behavior and learning environments. Design of behavior and classroom management of students in special education.

EDSP 415 Assessment in Special Education (3) Recommended: STAT100 or SOCY201. For EDSP or 0808P majors only. Also offered as EDSP615. Credit will be granted for only one of the following: EDSP320, EDSP415 or EDSP615. Formerly EDSP320. Knowledge and skills for understanding assessment process and interpretation of assessment data. Emphasis on psychometric aspects of assessment related to screening, eligibility, and program planning.

EDSP 416 Reading and Writing Instruction in Special Education I (3) For EDSP or 0808P majors only. Also offered as EDSP616. Credit will be granted for only one of the following: EDSP416, EDSP443 or EDSP616. Formerly EDSP443. Assessment and instruction of reading and writing skills for students in special education.

EDSP 420 Characteristics of Infants & Young Children: Early Childhood (3) Special Education For EDSP or 0808P majors only. Also offered as EDSP626. Credit will be granted for only one of the following: EDSP420 or EDSP626. Focus on developmental, behavioral, and learning characteristics of infants and young children with and without disabilities.

EDSP 421 Field Placement in Special Education: Early Childhood I (4) For EDSP or 0808P majors only. Students must reserve three half-days per week for field experience in early childhood special education. Field experience I in early childhood special education.

EDSP 422 Curriculum and Instruction: Early Childhood Special Education (3) For EDSP or 0808P majors only. Also offered as EDSP627. Credit will be granted for only one of the following: EDSP422 or EDSP627. Curriculum and instruction for young children with mild and moderate disabilities, preschool through primary grades.

EDSP 423 Assessment in Early Childhood Special Education (3) For EDSP or 0808P majors only. Also offered as EDSP624. Credit will be granted for only one of the following: EDSP423 or EDSP624. Assessment procedures for infants and young children with disabilities, birth through age eight.

EDSP 424 Field Placement in Special Education: Early Childhood II (2-4) For EDSP or 0808P majors only. Students must reserve three half-days per week for field experience in early childhood special education. Field experience II in early childhood special education.

EDSP 430 Early Intervention: Early Childhood Special Education (3) For EDSP or 0808P majors only. Also offered as EDSP631. Credit will be granted for only one of the following: EDSP430 or EDSP631. Intervention with infants and young children with disabilities. Focus on moderate and severe disabilities.

EDSP 434 Field Placement in Special Education: Secondary Middle I (4) For EDSP or 0808P majors only. Students must reserve three half-days per week for field experience in secondary middle special education. Field experience I in secondary middle special education.

EDSP 435 Field Placement in Special Education: Secondary Middle II (2-4) For EDSP or 0808P majors only. Students must reserve three half-days per week for field experience in secondary middle special education. Field experience II in elementary special education.

EDSP 450 Inclusive Practices in the Schools (3) Also offered as EDSP606. Credit will be granted for only one of the following: EDSP450, EDSP606, or EDSP788P. Educational practices regarding inclusive education in the schools for students with and without disabilities.

EDSP 451 Curriculum and Instruction: Elementary Special Education (3) For EDSP or 0808P majors only. Also offered as EDSP652. Credit will be granted for only one of the following: EDSP451 or EDSP652. Methods for instruction of students with disabilities in the general education curriculum. Collaboration with other professionals is included.

EDSP 452 Field Placement in Special Education: Elementary I (2-4) For EDSP or 0808P majors only. Field experience I in elementary special education.

EDSP 453 Methods and Models of Instruction: Elementary Special Education (3) For EDSP or 0808P majors only. Also offered as EDSP653. Credit will be granted for only one of the following: EDSP453 or EDSP653. Focus on models and methods of instruction responsive to the cognitive, linguistic, and cultural characteristics of elementary students in special education.

EDSP 454 Field Placement in Special Education: Elementary II (2-4) For EDSP or 0808P majors only. Students must reserve three half-days per week for field experience in elementary special education. Field experience II in elementary special education.

EDSP 455 Assessment in Elementary Special Education (3) For EDSP or 0808P majors only. Also offered as EDSP654. Credit will be granted for only one of the following: EDSP455 or EDSP654. Focus on selection, administration, and interpretation of assessment tools and results for designing instruction and evaluating progress of elementary students in special education.

EDSP 466 Issues and Models of Instruction: Middle/Secondary Special Education (3) For EDSP or 0808P majors only. Also offered as EDSP664. Credit will be granted for only one of the following: EDSP466 or EDSP664. Issues, legislation, and service models in middle/secondary special education. Emphasis on career and vocational education, self-determination, and transition.

EDSP 470 Introduction to Special Education (3) Not open to students who have completed EDSP210. Credit will be granted for only one of the following: EDSP210 or EDSP470. Designed to give an understanding of the needs of all types of exceptional children.

EDSP 474 Assessment in Middle/Secondary Special Education (3) For EDSP or 0808P majors only. Also offered as EDSP674. Credit will be granted for only one of the following: EDSP474 or EDSP674. Cognitive, vocational, and social assessment for students with disabilities. Emphasis on interpretation of assessment results and case management practices.

EDSP 476 Communicating with Sign Language (3) Prerequisite: EDSP376 or permission of department. Intermediate level receptive/expressive skills in American Sign Language. Aspects of the culture, history, and research perspectives of the deaf community.

EDSP 477 Curriculum, Assessment, and Instruction: Middle/Secondary Special (3) Education For EDSP or 0808P majors only. Also offered as EDSP677. Credit will be granted for only one of the following: EDSP477 or EDSP677. Methods and assessment practices for effective instruction in middle and secondary content areas for students in special education.

EDSP 481 Cultural Diversity and Disability (3) For 0808P majors only. Also offered as EDSP681. Credit will be granted for only one of the following: EDSP481, EDSP499C, EDSP678C, or EDSP681. Formerly EDSP499C. A study of diversity issues within special education, with attention to uses of race, culture, and disability as they pertain to teaching, learning, and social justice.

EDSP 482 Literacy Approaches for At-Risk Adolescents (3) Pre- or corequisite: EDHD426 or permission of department. Also offered as EDSP682. Credit will be granted for only one of the following: EDSP482, EDSP488R, EDSP682, or EDSP788R. Formerly EDSP488R. Provides approaches to teaching reading in the content areas for secondary students with disabilities.

EDSP 484 Reading and Writing Instruction in Special Education II (3) Prerequisite: EDSP416. For EDSP or 0808P majors only. Also offered as EDSP684. Credit will be granted for only one of the following: EDSP484 or EDSP684. Focus on the development of reading and writing programs for students in special education. Builds on foundations established in EDSP416.

EDSP 485 Assessment and Instruction in Mathematics in Special Education (3) For EDSP or 0808P majors only. Also offered as EDSP683. Credit will be granted for only one of the following: EDSP485 or EDSP683. Instructional methods and assessment in mathematics in special education .

EDSP 486 Promoting Prosocial Behavior in Special Education (3) For EDSP or 0808P majors only. Also offered as EDSP686. Credit will be granted for only one of the following: EDSP486 or EDSP686. Focus on social development among students with and without disabilities, the relationship between pedagogy and student behavior, and classroom, school, and community approaches for developing prosocial behavior.

EDSP 487 Family Partnerships in Special Education (3) For EDSP or 0808P majors only. Also offered as EDSP687. Credit will be granted for only one of the following: EDSP330, EDSP487, or EDSP687. Formerly EDSP330. Strategies for communicating and working with families of students with disabilities.

EDSP 488 Selected Topics in Teacher Education (1-3) Prerequisite: major in education or permission of department. Repeatable to 6 credits if content differs.

EDSP 489 Field Experiences in Special Education (1-4) Prerequisite: permission of department. Planned field experience in education-related activities. Credit not to be granted for experiences accrued prior to registration.

EDSP 490 Capstone Seminar in Special Education (3) For EDSP or 0808P majors only. Study of current issues and research concerning the education of students in special education.

EDSP 491 Characteristics of Learning Disabled Students (3) Prerequisite: EDSP470 or permission of department. Diagnosis, etiology, physical, social, and emotional characteristics of learning disabled students.

EDSP 494 Internship: Early Childhood Special Education (6-12) For EDSP or 0808P majors only. Student teaching, full-time for twelve weeks, with infants or preschool children with disabilities.

EDSP 495 Internship: Elementary Special Education (6-12) For EDSP or 0808P majors only. Student teaching, full-time for twelve weeks, with elementary age children with disabilities.

EDSP 496 Internship: Middle/Secondary Special Education (6-12) For EDSP or 0808P majors only. Student teaching, full-time for twelve weeks, with middle or high school age students with disabilities.

EDSP 498 Special Problems in Special Education (1-6) Prerequisite: permission of department. Available only to education majors who have definite plans for individual study of approved problems. Credit according to extent of work.

EDSP 499 Workshops, Clinics, and Institutes in Special Education (1-6) Repeatable to 6 credits if content differs. The following type of educational enterprise may be scheduled under this course heading: workshops conducted by the special education department (or developed cooperatively with other departments, colleges and universities) and not otherwise covered in the present course listing. Laboratories, and special education centers; institutes developed around specific topics or problems and intended for designated groups such as school superintendents, principals and supervisors.

EDUC -- Education

EDUC 275 Students, Learning and Technology (3) One hour of lecture and two hours of laboratory per week. Prerequisite: permission of department. Credit will be granted for only one of the following: EDUC275 or EDUC289A. Formerly EDUC289A. Explore skills essential to college success: technology fluency and applications, team building, collaboration tools, problem based critical thinking, through MicroWorlds and RoboLab. Investigate and visit professions that interconnect the fields of education and technology.

EDUC 386 Experiential Learning (3-6) Prerequisite: permission of department. Junior standing.

EDUC 388 Special Topics in Education (1-3) Prerequisite: permission of department. Repeatable to 6 credits if content differs.

EDUC 475 Mindtools for Investigation and Education (3) One hour of lecture, one hour of laboratory, and one hour of discussion/recitation per week. Prerequisite: permission of department. Junior standing. Also offered as EDUC698A. Explore educational games, simulations and computer modeling platforms common to many domains from a variety of fields. Focus on design and research issues pertinent to learning through simulations and games.

EDUC 476 Assessment and Design Strategies for Improving Student Learning: (3) Utilizing Data with Technology Tool One hour of lecture, one hour of laboratory, and one hour of discussion/recitation per week. Prerequisite: permission of department. Credit will be granted for only one of the following: EDUC476 or EDUC698V. Formerly EDUC698V. Explore systemic improvement strategies to curriculum planning, assessment, and instruction through utilizing data and data analysis via technology tools. It is designed to assist educators in identifying and using data that are most effective in assisting improvement of student achievement and system efficacy.

EDUC 477 Assistive Technology for the Classroom Setting (3) One hour of lecture, one hour of laboratory, and one hour of discussion/recitation per week. Prerequisite: permission of department. Junior standing. Credit will be granted for only one of the following: EDUC477 or EDUC498O. Formerly EDUC498O. Designed to be an introductory survey course for educators in the application of assistive technology in the general classroom setting. Students will be introduced to various assistive technologies and strategies.

EDUC 478 Using Information Technology in Schools (1-3) One hour of lecture, one hour of laboratory, and one hour of discussion/recitation per week. Prerequisite: permission of department. Junior standing. Repeatable to 6 credits if content differs. Not open to students who have completed EDUC498K. Formerly EDUC498K. Strategies, resources, tools and organizational concepts for using technology to facilitate classroom learning and school administrative functions.

EDUC 498 Selected Topics in Education (1-3) Prerequisite: permission of college. Repeatable to 9 credits if content differs. Current topics and issues in education.

EDUC 499 Honors Thesis (1-6) Prerequisites: admission to college honors program and permission of college. Individual thesis work under supervision of faculty advisors; includes periodic seminar meetings with other honors students engaged in thesis work.

ENAE -- Engineering, Aerospace

ENAE 100 The Aerospace Engineering Profession (1) Recommended: ENES100 and MATH140. Overview of salient aspects of professional practice of Aerospace Engineering. Introduction to the range of technical expertise needed to succeed in the profession and the objectives of the various parts of the Aerospace Engineering program at UMCP in supporting students' efforts in gaining the required knowledge and skills. Familiarization with departmental faculty and their areas of research, creation of links with other students, professional society student chapters, and available resources. Discussion of ethical issues, business requirements, and their interactions with technical developments.

ENAE 200 Aerospace Engineering Profession II (1) Prerequisite: permission of department. Recommended: ENAE100. For ENAE majors only. Overview of the engineering profession as it pertains to the role of the engineer in society, professional practice and ethical standards, career development, opportunities and need for lifelong learning, importance of safety and standards, effective written, visual, and oral communications, and the impact of the engineering profession on global issues.

ENAE 202 Aerospace Computing (3) Two hours of lecture and two hours of laboratory per week. For ENAE majors only. Also offered as ENCE202. Credit will be granted for only one of the following: ENAE202 or ENCE202. Introduction to computational tools for the solution of engineering problems. C++ & MATLAB programming including branching and loops, functions, file handling, arrays, and data structures. Students will be introduced to object-oriented programming, basic computing, algorithms, and principles of software engineering.

ENAE 283 Introduction to Aerospace Systems (3) Prerequisites: PHYS161, ENES102 and MATH141. Corequisites: PHYS260 and 261, formerly PHYS262. Formerly: ENAE281 and ENAE282. For ENAE majors only. Credit will be granted for only one of the following: ENAE281 and ENAE282 or ENAE283. Introduction to airplanes and space vehicles as aerospace systems. Fundamentals that describe these systems. Elements of aerodynamics, airfoils and wings. Airplane performance, stability and control. Aircraft and rocket propulsion. Fundamentals of orbital motion. Aspects of vehicle conceptual design.

ENAE 301 Dynamics of Aerospace Systems (3) Prerequisites: ENAE283, MATH240, MATH246, and {PHYS270 and PHYS271 (Formerly: 263)}.ENAE majors only or permission of department. Junior standing. Kinematics and dynamics of three dimensional motion of point masses and rigid bodies with introduction to more general systems. Primary emphasis on Newtonian methods. Practice in numerical solutions and computer animation of equations of motion using MATLAB.

ENAE 311 Aerodynamics I (3) Prerequisites: ENAE283 and MATH246. ENAE majors only or permission of department. Formerly ENAE471. Fundamentals of aerodynamics. Elements of compressible flow. Normal and oblique shock waves. Flows through nozzles, diffusers and wind tunnels. Elements of the method of characteristics and finite difference solutions for compressible flows. Aspects of hypersonic flow.

ENAE 324 Aerospace Structures (4) Prerequisite: ENES220. For ENAE majors only. Credit will be granted for only one of the following: ENAE322 or ENAE324. Formerly ENAE322. Analysis of torsion, beam bending, plate bending, buckling and their application to aerospace.

ENAE 362 Aerospace Instrumentation and Experimentation (3) Two hours of lecture and two hours of laboratory per week. Prerequisite: ENAE283 and MATH246. Junior standing. For ENAE majors only. Basic instrumentation electronics including DC electronics, AC electronics, semiconductors, electro-optics and digital electronics. Sensing devices used to carry out experiments in Aerospace Engineering includes metrology, machine tool measurements, bridge circuits, optical devices, and introduction to computer based data acquisition. Topics chosen to support measurements in aerodynamics, flight structures and flight control.

ENAE 380 Flight Software Systems (3) Three hours of lecture and two hours of laboratory per week. Prerequisite: ENAE202 and ENAE283. Junior standing. For ENAE majors only. Avionics using advanced sensor and computing technologies are at the heart of every modern Aerospace vehicle. Advanced software systems to improve cockpit safety and enable unmanned and deep-space missions. Object-oriented programming and software engineering concepts required to design and build complex flight software systems. Software validation, verification and real-time performance analysis to assess flight software system reliability and robustness. Human-machine interface design for piloted systems. Automatic onboard data acquisition and decision-making for unmanned air and space vehicles.

ENAE 398 Honors Research Project (1-3) Prerequisite: Acceptance into Aerospace Honors Program. For ENAE majors only. Repeatable to 3 credits if content differs. Planned sequence of steps in aerospace honors research in which students take three (3) consecutive semesters of this course in partial fulfillment of aerospace engineering honors program requirements. The first semester consists of a series of seminars and meetings with faculty mentors on honors research; two semesters consist of undergraduate honors research project and paper conducted under the direction of an aerospace engineering faculty member to be presented at a conference.

ENAE 403 Aircraft Flight Dynamics (3) Prerequisites: ENAE432 and ENAE414. ENAE majors only or permission of department. Study of motion of aircraft, equations of motion, aerodynamic force representation, longitudinal and lateral motions, response to controls and to atmospheric disturbances, handling qualities criteria and other figures of merit.

ENAE 404 Space Flight Dynamics (3) Prerequisite: ENAE301. ENAE majors only or permission of department. Three-dimensional motion under central fields. Solutions to orbital motion, orbital elements, time elements. Kepler's laws. Orbital maneuvering, rendezvous and station-keeping. Rigid-body attitude dynamics, spacecraft attitude dynamics.

ENAE 414 Aerodynamics II (3) Prerequisite: ENAE311. ENAE majors only or permission of department. Junior standing. Formerly ENAE371. Aerodynamics of inviscid incompressible flows. Aerodynamic forces and moments. Fluid statics/buoyancy force. Vorticity, circulation, the stream function and the velocity potential. Bernoulli's and Laplace's equations. Flows in low speed wind tunnels and airspeed measurement. Potential flows involving sources and sinks, doublets, and vortices. Development of the theory of airfoils and wings.

ENAE 415 Helicopter Theory (3) Prerequisite: ENAE414. For ENAE majors only. Elementary exposition on the theory and practice of aerodynamics applied to helicopters and other rotary wing aircraft.

ENAE 420 Computational Structural Mechanics (3) Prerequisite: ENES220, MATH241, Linear Algebra. For ENAE majors only or with permission of department. Introductory of finite element methods for aerospace engineering modeling and analysis; equips students with ability to understand manuals of commercial finite element analysis software.

ENAE 423 Vibration and Aeroelasticity (3) Prerequisite: ENAE324. ENAE majors only or permission of department. Dynamic response of single and multiple degrees of freedom systems, finite element modeling, wing divergence, aileron reversal, wing and panel flutter.

ENAE 424 Design and Manufacture of Composite Prototypes (3) Two hours of lecture and three hours of laboratory per week. Prerequisite: ENES220. Corequisite: ENAE324. For ENAE majors only. Manufacturing practices involving composites. Developing a manufacturing process for a composite component integrating the many aspects including cost, schedule, performance. Student teams provide oral and written reports of the design and manufacture of a composite prototype.

ENAE 425 Mechanics of Composite Structures (3) Prerequisite: MATH246. Corequisite: ENAE324. Introduction to structures composed of composite materials and their applications in aerospace. In particular, filamentary composite materials are studied. Material types and fabrication techniques, material properties, micromechanics, anisotropic elasticity, introduction to failure concepts.

ENAE 432 Control of Aerospace Systems (3) Prerequisite: grade of C or better in ENAE283 and ENAE301. Junior standing. For ENAE majors only. Formerly ENAE332. An introduction to the feedback control of dynamic systems. Laplace transforms and transfer function techniques; frequency response and Bode diagrams. Stability analysis via root locus and Nyquist techniques. Performance specifications in time and frequency domains, and design of compensation strategies to meet performance goals.

ENAE 441 Space Navigation and Guidance (3) Prerequisites: ENAE432 and ENAE404. ENAE majors only or permission of department. Principles of navigation. Celestial, radio, and inertial navigation schemes. Navigational and guidance requirements for orbital, planetary, and atmospheric entry missions. Fundamentals of communications and information theory. Link budgets, antennas and telemetry systems.

ENAE 455 Aircraft Propulsion and Power (3) Prerequisite: ENAE311, ENAE414 and ENME232. ENAE majors only or permission of department. Thermodynamic cycle analysis, aerothermochemistry of fuels and propellants, operating principles of piston, turbojet, fanjet, and other variations of airbreathing aircraft power units.

ENAE 457 Space Propulsion and Power (3) Prerequisites: ENAE311, ENME232 and (PHYS270 and 271 {Formerly: PHYS263}). ENAE majors only or permission of department. Senior standing. Thermodynamic cycle analysis, aerothermochemistry of fuels and propellants, operating principles of rocket, ion, and other exoatmospheric power units.

ENAE 464 Aerospace Engineering Laboratory (3) Two hours of lecture and three hours of laboratory per week. Prerequisites: ENAE311; ENAE324; ENAE432; and ENAE362. ENAE majors only or permission of department. Application of fundamental measuring techniques to measurements in aerospace engineering. Includes experiments in aerodynamics, structures, propulsion, flight dynamics and astrodynamics. Correlation of theory with experimental results.

ENAE 471 Aircraft Flight Testing (3) Prerequisite: ENAE414;. Corequisite: ENAE403. For ENAE majors only. Provides basic instruction to aircraft flight testing and demonstrates need for systematic, well-proven technique to allow for accurate airplane performance. Concepts of aerodynamics, airplane performance, and stability and control. Emphasis on single-engine general aviation type aircraft.

ENAE 480 Fundamentals of Engineering Design (3) Two hours of lecture and two hours of laboratory per week. Prerequisite: ENES102, ENES220, ENAE202 or equivalent. For Aerospace engineering majors only or with permission of department. Credit will be granted for only one of the following: ENAE480 or ENAE488P. Formerly ENAE488P. Presents broad overview at advanced level of designing a part as it relates to design philosophies in solving engineering and manufacturing problems. Emphasis is placed on manufacturing requirements and their effects on product processing.

ENAE 481 Principles of Aircraft Design (3) Prerequisites: ENAE324, ENAE362 and ENAE432. Corequisite: ENAE414. ENAE majors only or permission of department. Aircraft design principles blending both synthesis and analysis. The iterative nature of the design process. Applied aerodynamics. Elements of aircraft performance calculation and optimization. Design of aircraft including payload, crew and avionics provisions, propulsion selection and sizing, aerodynamic configuration optimization, mass properties, stability and control characteristics, and vehicle subsystems. Individual student projects in aircraft design.

ENAE 482 Aeronautical Systems Design (3) Two hours of lecture and three hours of laboratory per week. Prerequisites: ENAE403; ENAE423; ENAE455; and ENAE481. Senior standing. For ENAE majors only. Senior capstone design course in the aeronautics track. Introduction of computerized methods for sizing and performance analysis. More comprehensive methods to predict weight, aerodynamics and propulsion system characteristics. Consideration in design disciplines such as vulnerability, maintainability, produceability, etc. Groups of students will complete, brief and report on a major design study to specific requirements.

ENAE 483 Principles of Space Systems Design (3) Prerequisites: ENAE324; ENAE432; ENAE362; and ENAE404. ENAE majors only or permission of department. Principles of space systems analysis and vehicle design. Launch vehicle performance analysis and optimization. Design of vehicle systems including avionics, power, propulsion, life support, human factors, structures, actuator and mechanisms, and thermal control. Design processes and design synthesis. Individual student projects in vehicle design.

ENAE 484 Space Systems Design (3) Three hours of lecture and six hours of discussion/recitation per week. Prerequisites: ENAE423; ENAE441; ENAE457; and ENAE483. For ENAE majors only. Senior capstone design course in the space track. Group preliminary design of a space system, including system and subsystem design, configuration control, costing, risk analysis, and programmatic development. Course also emphasizes written and oral engineering communications.

ENAE 488 Topics in Aerospace Engineering (1-4) Technical elective taken with the permission of the student's advisor and instructor. Lecture and conference courses designed to extend the student's understanding of aerospace engineering. Current topics are emphasized.

ENAE 499 Elective Research (3) Prerequisites: senior standing in ENAE major and permission of department, instructor, and student's advisor. Repeatable to 6 credits if content differs. Undergraduate research project and paper conducted under the direction of an aerospace engineering faculty member to be presented at a conference or competition.

ENBE -- Biological Resources Engineering

ENBE 120 Predictive Biology (2) Three hours of lecture per week. Freshman standing. Survey of biological and engineering sciences applied to biology and medicine.

ENBE 200 Fundamentals of Agricultural Mechanics (3) Two hours of lecture and four hours of laboratory per week. Formerly ENAG200. Study of hand tools and power shop equipment as they relate to mechanized agriculture, in tool fitting, plumbing, wood and metal working, welding, brazing, soldering, hot and cold sheet metal, electricity, construction and building materials, sketching, drawing and using plans for construction. Emphasis is upon the development of orderly and safe shop procedures.

ENBE 241 Computer Use in Bioresources Engineering (3) Two hours of lecture and two hours of laboratory per week. Prerequisite: permission of department. Application of computer technology to biological and natural resource systems considering engineering aspects. Designed to help students in the use of computer technology for problem solving. The course will cover 4-5 software packages important for later use by the student.

ENBE 415 Bioengineering of Exercise Response (3) Prerequisite: MATH246 or permission of department. Exercise physiology in quantitative terms. Modeling and prediction of cardiovascular, respiratory, thermoregulatory, biomechanical, and metabolic aspects of human exercise responses.

ENBE 422 Water Resources Engineering (3) Prerequisite: ENME342 or ENCE330; or permission of department. Formerly INAG422. Applications of engineering and soil sciences in erosion control, drainage, irrigation and watershed management. Principles of agricultural hydrology and design of water control and conveyance systems.

ENBE 462 Nonpoint Source Pollution Assessment Techniques (3) Prerequisite: one course in hydrology or permission of department. Various techniques to identify and measure nonpoint source pollution. Primary focus is on agriculture and water.

ENBE 485 Capstone Design I (1) One hour of lecture per week. Prerequisite: ENBE454, ENBE455, and permission of department. Senior standing. For ENBE majors only. To complete the curriculum of an undergraduate engineer, design procedures and professional concerns will be presented. Students will begin planning and designing their capstone projects. CORE capstone credit for ENBE485 and ENBE486 will not be awarded until satisfactory completion of ENBE486.

ENBE 486 Capstone Design II (2) Two hours of lecture per week. Prerequisite: ENBE485 taken in the immediately preceding semester. Senior standing. For ENBE majors only. To complete the curriculum of an undergraduate engineer, design procedures and professional concerns will be presented. A complete, comprehensive, and professional design project will be realized by the student. CORE Capstone credit for ENBE485 and ENBE486 will not be awarded until satisfactory completion of ENBE486.

ENBE 488 Special Topics in Biological Engineering (1-4) Prerequisite: permission of department. Lecture and conference courses designed to extend the student's understanding of biological resources engineering. Current topics are emphasized.

ENBE 489 Special Problems in Biological Engineering (1-3) Prerequisite: permission of department. Student will select an engineering problem and prepare a technical report. The problem may include design, experimentation, and/or data analysis.

ENBE 499 Special Problems in Agricultural Engineering Technology (1-3) Prerequisite: permission of department. Formerly ENAG499. Not acceptable for majors in agricultural engineering. Problems assigned in proportion to credit.

ENCE -- Engineering, Civil

ENCE 100 Introduction to Civil and Environmental Engineering (1) An overview of the department of Civil and Environment Engineering. Students are introduced to the undergraduate curriculum and will be exposed to other undergraduate and graduate students at various points in their program. The course blends panel presentations by seniors and graduate students, faculty and practitioners with a project and book review to be performed by the students.

ENCE 200 Engineering Information Processing I (3) Prerequisites: MATH141, ENES100, ENES102 and permission of department. Credit will be granted for only one of the following: ENCE200 or ENCE202. Formerly ENCE202. Spreadsheet, computational and symbolic processing packages are introduced in the context of solving engineering problems, including systems of linear equations. Computer architecture, networks, Boolean algebra, databases and introductory programming skills.

ENCE 201 Engineering Information Processing II (3) Prerequisite: ENCE200 and permission of department. Credit will be granted for only one of the following: ENCE201 or ENCE203. Matrix algebra and numerical computing. Includes computing accuracy, solutions of systems of linear equations, root-finding, function approximation, and numerical integration. Additional computing material including data types and structures, object-based programming, event-based programming, and client-server computing. Numerical and computing techniques are taught in the context of solving engineering problems.

ENCE 215 Applied Engineering Sciences (3) Prerequisite: CHEM135 and permission of department. Examination of fundamental and applied aspects of chemistry, biology, and geochemistry. Fundamental principles will be coupled with analytical and computational skills essential for addressing crucial processes on human impact on the environment and urban infrastructure. Applications to the development of new materials and technologies will be covered in case studies. Students should come out with an appreciation of how understanding the fundamental concepts could facilitate the development of technologies to mitigate human impact on the environment.

ENCE 300 Fundamentals of Engineering Materials (3) Two hours of lecture and two hours of laboratory per week. Prerequisite: ENES220 and permission of department. Behavior, physical, mechanical and chemical properties, design and performance of civil engineering materials, including aggregates, cement, concrete, asphalt binders and mixtures, plastics and geosynthetics, timber, metals and alloys. Modified and advanced highway materials (polymer and rubber modified mixtures, high performance concrete, composites, smart materials). Laboratory testing with hands-on experience on aggregates, Portland cement concrete, asphalt mixtures, timber and metals as per SUPERAVE, ACI design methods, and ASTM standards and specifications.

ENCE 301 Geo-Metrics and GIS in Civil Engineering (3) Prerequisites: ENCE200, ENCE201 and permission of department. The purpose is to have students develop skills in using GIS technology to solve a range of problems in Civil and Environmental Engineering. It begins with a rigorous unit on the basics of database organization and use. Then it presents GIS concepts emphasizing the linkage between a standard relational database and the spatially-referenced database underlying the GIS. Both raster and vector data models are presented and used in a variety of natural applications to Civil and Environmental Engineering. Students are also exposed to scripting which aids in the development of more elaborate analyses and reinforces object-oriented programming concepts learned in ENCE 200 and ENCE 201.

ENCE 302 Probability and Statistics for Civil and Environmental Engineers (3) Prerequisites: ENCE201, MATH246, and permission of department. Statistics is the science of data. Civil Engineers must often make decisions based on incomplete, variable or uncertain information. In addition, modern methods of design and analysis need to account for variability in natural, engineered and human systems. After successful completion of this class, a student should have facility and familiarity with established basic techniques for managing data, modeling variability and uncertainty, communicating about data and decisions, and supporting or defending a decision or judgment based on uncertain or incomplete data.

ENCE 305 Fundamentals of Engineering Fluids (3) Prerequisites: ENES220, (PHYS260 and PHYS261 {Formerly: PHYS262}) and permission of department. Credit will be granted for only one of the following: ENCE305 or ENCE330. Formerly ENCE330. The theoretical bases for fluid statics and dynamics, including the conservation of mass, energy and momentum. Modeling of hydraulic systems are introduced. Emphasis on pipe flow and open-channel hydraulics, with real-world applications.

ENCE 310 Introduction to Environmental Engineering (3) Prerequisites: ENCE215, PHYS260 (Formerly:

PHYS262) and permission of department. Introduction to the physical, chemical and biological systems relating to the quality of water, land and air environments. Fundamental principles will be emphasized, current environmental pollution problems will be examined and methods of pollution abatement discussed.

ENCE 320 Introduction to Project Management (3) Five hours of lecture per week. Prerequisite: permission of department. A course designed to expose students to the techniques of engineering project management and to develop analytical skills necessary on the management side of engineering projects. Topics include economic analysis, project screening and selection, organizational and project structure, scheduling, budgeting, resource management, life cycle costing, and project control.

ENCE 340 Fundamentals of Geotechnical Engineering (3) Prerequisite: ENES220 and permission of department. Introductory study of soils in civil engineering. Soil origin, phase relationships and classification schemes. Soil hydraulics: capillary, effective stress, permeability and seepage considerations. Basic stress distribution theories and soil consolidation-settlement analysis. Integration of shear strength evaluation with slope stability analysis. If time permits, topics such as applications in geoenvironmental engineering will be covered.

ENCE 353 Introduction to Structural Analysis (3) Prerequisites: ENES220, MATH246 and permission of department. The basic tools of structural analysis and design. Design loads. Equilibrium of external and internal forces. Shear and moment diagrams in beams and frames. Truss analysis. Influence line diagrams. The slope-deflection method and method of consistent deformation. Matrix stiffness methods for beams, frames and trusses.

ENCE 360 Analysis of Civil Engineering Systems (3) Prerequisites: ENCE201, MATH140 and permission of department. Introduction to systems approach and systems analysis in civil and environmental engineering. Introduction to systems analysis tools that facilitate engineering management decision making including optimization and computer simulation. Introduction to linear and nonlinear mathematical optimization including linear and integer programming, elementary nonlinear programming and dynamic programming.

ENCE 370 Introduction to Transportation Engineering and Planning (3) Prerequisites: ENCE201, (PHYS260 and PHYS261 {Formerly: PHYS262}) and permission of department. Engineering problems of transportation by highways, airways, pipelines, waterways, and railways. Transportation modes and technologies, vehicle dynamics, basic facility design, traffic stream models, capacity analysis, transportation planning, evaluation and choice, and network analysis.

ENCE 386 Experiential Learning (3-6) Prerequisite: Learning Proposal approved by the Office of Experiential Learning Programs, faculty sponsor, and student's internship sponsor. Junior standing.

ENCE 398 Honors Research Project (1-3)

ENCE 402 Simulation and Design of Experiments for Engineers (3) Prerequisites: ENCE302 and permission of department. Review of statistics and hypothesis testing, sample design and design of experiments, generation of discrete and continuous distributions and their applications. Introduction of simulation languages and simulation of discrete and continuous engineering systems. Output analysis, model validation and sensitivity and reliability analysis.

ENCE 411 Environmental Engineering Science (3) Two hours of lecture and four hours of laboratory per week. Prerequisites: ENCE310 and permission of department. The basic physical, chemical and biological processes that occur in engineered and natural environmental systems will be discussed. Included will be presentation of parameters used to describe the quality of water, air and land. Measurement techniques will be discussed. A weekly lab will provide hands-on experience with environmental quality measurements and treatment techniques.

ENCE 412 Environmental Engineering Unit Operations (3) Prerequisites: ENCE305, ENCE310 and permission of department. Examination of unit operations and processes encountered in environmental engineering field. Fundamental principles learned from previous classes will be applied into the design and operation of unit operations and processes, particularly in the area of water and wastewater treatment. Similar processes will be applied to air pollution control, solid waste disposal and hazardous waste treatment.

ENCE 420 Selection and Utilization of Construction Equipment (3) Prerequisite: ENCE320 or equivalent; and permission of department. Senior standing. Construction equipment for excavation, hauling, lifting, structural assembly, paving, and allied functions. Fundamentals of equipment performance, productivity calculations, and cost management. Matching of construction tasks to appropriate construction equipment. Innovative technologies in equipment design and performance. Information technology and automation for construction equipment. Field demonstrations of earth-moving and lifting equipment.

ENCE 421 Legal Aspects of Engineering Practice (3) Prerequisites: ENCE320 or equivalent; and permission of department. Study legal principles relevant to engineering design and construction contracts. Specific subjects covered include engineering design and construction contracts, torts, agency, professional liability, labor laws, insurance, expert testimony, mediation and arbitration, intellectual property, patents and copyrights, sureties and ethics. Study principles of ethical and professional conduct of engineers. Gaining familiarity with the basic structure of the US legal system as it relates to legal obligations and responsibilities of engineers.

ENCE 422 Project Cost Accounting and Economics (3) Prerequisite: ENCE320 or equivalent; and permission of department. Effective project managers have complete command of their project costs. Reviews the fundamentals of accounting; examines project cost accounting principles, applications, and impact on profitability; examines the principles of activity based costing; covers the elements involved in cash management; introduces the framework for project performance measurement, net present value, depreciation, taxes, and earned value analysis.

ENCE 423 Project Planning, Scheduling and Control (3) Prerequisite: ENCE320 or equivalent; and permission of department. Students will learn the basics of project planning and scope development; developing implementation plans; creating work breakdown structures; scheduling fundamentals and the different methods of scheduling; when to schedule, why network schedules and the network diagram; scheduling calculations and the critical path; managing project risk; and the fundamentals of project control including basic control theory and how to control project cost, schedule and resources.

ENCE 424 Communication for Project Managers (3) For Project Management Minors and CEE Majors only; or permission of department. The fundamentals of communications for project managers. Emphasis on interpersonal and group communications; communication through voice, electronic, and written messages; project cycle and reports and presentations during this cycle; and communications for employment.

ENCE 425 Decision Analysis for Engineering (3) Prerequisites: ENCE302, MATH141 or equivalent; and permission of department. Probability basics, subjective probability, using data, introduction to decision analysis, elements of decision problems, structuring decisions, making choices, sensitivity analysis, creativity and decision-making, Monte Carlo simulation, value of information, risk-based decision making and multi-criteria ranking.

ENCE 431 Hydrologic Engineering (3) Prerequisites: ENCE305 and permission of department. An introduction to basic principles of hydrologic science including the hydrologic cycle, rainfall, surface runoff and streamflow. Special emphasis is placed on hydrologic engineering design of stormwater management and flood control facilities. Design projects are used to illustrate design practices.

ENCE 432 Ground Water Hydrology (3) Prerequisites: ENCE 305 and permission of department. Concepts related to the development of the ground water resources, hydrology, hydrodynamics of flow through porous media, hydraulics of wells and basin-wide ground water development. Fundamentals of ground water pollution are introduced.

ENCE 441 Foundation Design (3) Prerequisites: ENCE340 and permission of department. Critical review of classical lateral earth pressure theories, analysis of retaining walls and reinforced earth walls, subsurface explorations, bearing capacity and settlement of shallow foundations, design of deep foundations that includes both pile foundations and drilled shafts.

ENCE 444 Laboratory Characterization of Geomaterials (3) One hour of lecture and four hours of laboratory per week. Prerequisites: ENCE340 and permission of department. Review of major soil tests and their interpretation for engineering purposes. Engineering classification tests (Atterberg limits and grain size distribution), permeability, in-situ and lab density-moisture test, soil strength (CBR, unconfined compression, direct shear test and triaxial) and compressibility characteristics.

ENCE 447 Pavement Engineering (3) Prerequisites: ENCE340 and permission of department. Fundamental principles underlying the design, construction, maintenance and repair, and management of highway and airfield pavement systems. Pavement performance (functional/structural; evaluation); pavement mechanics (multi-layered elastic theory; slab theory); pavement materials (properties and characterization); environmental effects; current rigid and flexible design methods (new/rehabilitation); construction (new construction; maintenance/repair; rehabilitation); economic evaluation; pavement management.

ENCE 453 Computer-Aided Structural Analysis (3) Two hours of lecture and one hour of laboratory per week. Prerequisite: ENCE353 and permission of department. Computer-aided analysis of structural systems. Unified matrix formulation of stiffness and flexibility methods. Slope deflection method. Evaluation of truss, frame, and grid systems. Non-prismatic and curved elements. Error analysis and determination of ill-conditions. Introduction to finite element methods; formulation of simple two-dimensional elements. In laboratory, use and development of CAD software.

ENCE 454 Design of Concrete Structures (3) Prerequisites: ENCE353 and permission of department. Formerly ENCE451. Combined bending and compression, development and anchorage of reinforcement, deflections, design of slabs including one-way and two-way, design of footings, retaining walls, introduction to prestressed concrete, design of multi-story buildings.

ENCE 455 Design of Steel Structures (3) Prerequisites: ENCE353 and permission of department. Behavior and design of members subjected to fatigue, and combined bending and compression; plate girders, composite beams, open-web joists and connections. Methods of allowable stress design, and load and resistance factor design. Elements of plastic analysis and design. Framing systems and loads for industrial buildings and bridges.

ENCE 456 Intermediate Strength of Materials (3) Prerequisites: ENCE353 and permission of department. Credit will be granted for only one of the following: ENCE410 or ENCE456. The small deflection engineering theory of long, straight beams with arbitrary but compact cross-sections. Beam bending and extension via the Bernoulli-Euler approximation. Beam torsion from the theory of elasticity and the membrane analogy. Beam shearing stresses.

ENCE 466 Design of Civil Engineering Systems (3) Must be taken in the semester in which the student graduates. Prerequisite: permission of department. Senior standing. A major civil engineering design experience that emphasizes development of student creativity, development and use of design methodologies, evaluation of alternate solutions, feasibility considerations, and detailed system descriptions. Realistic design constraints including economic factors, safety, aesthetics, and reliability will be imposed. Students will work in design project groups and be required to exercise oral and written communication skills.

ENCE 470 Highway Engineering (3) Two hours of lecture and two hours of laboratory per week. Prerequisite: ENCE302, ENCE370 and permission of department. Highway location and design, highway engineering economics, traffic engineering, traffic measurement devices and technologies. Includes discussion of technological advances in traffic flow and capacity, such as signal systems, corridor control, automatic driver information, incident detection and autonomous vehicle operation.

ENCE 472 Transportation Engineering (3) Prerequisite: ENCE302, ENCE370 and permission of department. Transportation engineering concepts including transportation systems analysis, airport systems, airline and airport operations, marine transportation and urban public transportation systems.

ENCE 488 Senior Thesis (3) Prerequisite: permission of department. Senior standing. Advanced study in civil engineering problems with special emphasis on mathematical modeling and experimental methods.

ENCE 489 Special Problems in Civil Engineering (1-4) Prerequisite: permission of department. Senior standing. A course arranged to meet the needs of exceptionally well prepared students for study in a particular field of civil engineering.

ENCH -- Engineering, Chemical

ENCH 215 Chemical Engineering Analysis (3) Three hours of lecture and one hour of discussion/recitation per week. Prerequisite: CHEM133 or CHEM113. Pre- or corequisite: MATH141. Introduction to methods of chemical engineering calculations and analysis. Stoichiometric relations, material and energy balances, and behavior of gases, vapors, liquids and solids. Analytical and computer methods.

ENCH 250 Computer Methods in Chemical Engineering (3) Three hours of lecture and one hour of discussion/recitation per week. Prerequisites: ENES100; and ENCH215. Corequisite: MATH246. Algorithm development and application of software to the analysis of chemical engineering problems. File management and editing, graphics and numerical methods. Use of spreadsheets, statistics/math software and process simulators for the design of chemical process equipment.

ENCH 300 Chemical Process Thermodynamics (3) Three hours of lecture and one hour of discussion/recitation per week. Prerequisites: CHEM241; and ENCH215. Corequisite: MATH241 and ENCH250. Principles of thermodynamics and their application to engineering problems. First and second laws of thermodynamics, properties of gases, liquids and solids, phase equilibrium, flow and non-flow systems, energy conversion, production of work from heat, thermodynamic analysis of processes, equilibrium stage operations and the thermodynamics of chemically reacting systems.

ENCH 333 Chemical Engineering Seminar (1) Junior standing. Oral and written reports on recent developments in chemical engineering and the process industries.

ENCH 386 Experiential Learning (3-6) Prerequisite: Learning Proposal approved by the Office of Experiential Learning Programs, faculty sponsor, and student's internship sponsor. Junior standing.

ENCH 400 Chemical Engineering Thermodynamics (3) Prerequisite: PHYS260 and 261 (Formerly: PHYS262), ENCH250 and ENCH300. Contemporary trends in chemical engineering thermodynamics that bridge the gap between fundamentals and applications. Thermodynamic analysis of non-ideal and structured systems; such as complex fluids, strongly fluctuating and nanoscale systems, dissipative systems, biosystems, and systems under extreme conditions.

ENCH 422 Transport Processes I (3) Three hours of lecture and one hour of discussion/recitation per week. Prerequisites: ENCH215 and ENCH250. Pre- or corequisites: MATH241 and MATH246. Principles of fluid dynamics as applied to model development and process design. Mass, momentum and energy conservation. Statics and surface tension. Equation of Continuity and Navier-Stokes Equation with application to laminar flow. Dimensional analysis. Macroscopic balances, Bernoulli Equation and friction factors with application to turbulent flow.

ENCH 424 Transport Processes II (3) Three hours of lecture and one hour of discussion/recitation per week. Prerequisites: ENCH300 and ENCH422. Principles of mass and heat transfer as applied to model development and process design. Species continuity equation with application to diffusion, and convection in laminar flow. Macroscopic balances and mass transfer coeffecients with application to turbulent flow. Mircroscopic equation of energy with application to heat conduction, and convection in laminar flow. Macroscopic energy balance and heat transfer coeffecients with application to turbulent flow. Heat exchanger design.

ENCH 426 Transport Processes III (3) Three hours of lecture and one hour of discussion/recitation per week. Prerequisites: ENCH300. Separation by staged operations. Rate dependent separation processes. Design applications in distillation, gas absorption, liquid extraction, drying, adsorption and ion exchange.

ENCH 437 Chemical Engineering Laboratory (3) Six hours of laboratory per week. Prerequisites: ENCH424; ENCH426; ENCH440; and ENCH442. Application of chemical engineering process and unit operation principles in small-scale semi-commercial equipment. Data from experimental observations are used to evaluate performance and efficiency of operations. Emphasis on correct presentation of results in report form.

ENCH 440 Chemical Engineering Kinetics (3) Three hours of lecture and one hour of discussion/recitation per week. Prerequisites: ENCH400; and ENCH422. Fundamentals of chemical reaction kinetics and their application to the design and operation of chemical reactors. Reaction rate theory, homogeneous reactions and catalysis electrochemical reactions. Catalytic reactor design.

ENCH 442 Chemical Engineering Systems Analysis (3) Three hours of lecture and one hour of discussion/recitation per week. Prerequisites: ENCH300; and ENCH422. Corequisite: ENCH440. Dynamic response applied to process systems. Goals and modes of control, Laplace transformations, analysis and synthesis of simple control systems, closed loop response, dynamic testing.

ENCH 444 Process Engineering Economics and Design I (3) Prerequisites: ENCH424; ENCH426 and ENCH440. Principles of chemical engineering economics and process design. Emphasis on equipment types, equipment design principles, capital cost estimation, operating costs, and profitability.

ENCH 446 Process Engineering Economics and Design II (3) Prerequisite: ENCH444. Application of chemical engineering principles for the design of chemical processing equipment. Typical problems in the design of chemical plants.

ENCH 453 Applied Mathematics in Chemical Engineering (3) Prerequisites: MATH246; ENCH426 and ENCH440. Mathematical techniques applied to the analysis and solution of chemical engineering problems. Use of differentiation, integration, differential equations, partial differential equations and integral transforms. Application of infinite series, numerical and statistical methods.

ENCH 454 Chemical Process Analysis and Optimization (3) Prerequisites: MATH246; ENCH426 and ENCH440. Applications of mathematical models to the analysis and optimization of chemical processes. Models based on transport, chemical kinetics and other chemical engineering principles will be employed. Emphasis on evaluation of process alternatives.

ENCH 455 Model Predictive Control (3) One hour of lecture and six hours of laboratory per week. Prerequisite: ENCH422. Credit will be granted for only one of the following: ENCH455 or ENCH468Z. Formerly ENCH468Z. Empirical model identification from process data. Step and impulse response models. Linearization of nonlinear first principles models. Single variable Model Predictive Control. Robustness with respect to modeling error. MPC based tuning of PID controllers. Feedforward control. Multi-input multi-output processes. Multi-loop decentralized control. Centralized multivariable Model Predictive Control via on-line optimization.

ENCH 456 Plantwide Process Control (3) Prerequisite: ENCH442. Credit will be granted for only one of the following: ENCH442 or ENCH468L. Formerly ENCH468L. An introduction to the problem of designing plantwide control system architectures. Steady state gain calculation, singular value decomposition, relative gain array, niederlinski index, cascade control, averaging level control loop tuning, dynamic simulation, model based control. The Tennessee Eastmen challenge problem is used throughout the course to illustrate the methods discussed.

ENCH 468 Research (1-3) Prerequisite: permission of both department and instructor. Repeatable to 6 credits. Investigation of a research project under the direction of a faculty member. Comprehensive reports are required.

ENCH 470 The Science and Technology of Colloidal Systems (3) Prerequisites: ENCH400; ENCH424; ENCH426; and CHEM482. Credit will be granted for only one of the following: ENCH468C or ENCH470. Formerly ENCH468C. Introduction to colloidal systems. Preparation, stability and coagulation kinetics of colloidal suspensions. Introduction to DLVO theory, electrokinetic phenomena, rheology of dispersions, surface/interfacial tension, solute absorption at gas-liquid, liquid-liquid, liquid-solid and gas-solid interfaces and properties of micelles and other microstructures.

ENCH 471 Particle Science and Technology (3) Credit will be granted for only one of the following: ENCH468I or ENCH471. Formerly ENCH468I. Theory and modeling techniques for particle formation and particle size distribution dynamics. Science and technology of multiphase systems, powder and aerosol technology. Industrial, environmental and occupational applications: dry powder delivery of drugs, aerosol generation methods, nanoparticles, biowarfare agent detection, dry powder mixing, particulate emissions. Design particle synthesis and processing systems, particle removal systems.

ENCH 472 Control of Air Pollution (3) Credit will be granted for only one of the following: ENCH468D or ENCH472. Formerly ENCH468D. Effects and sources of air pollutants, legislation and regulatory trends; meteorology, atmospheric dispersion models; distribution functions, particle size distributions; particulate control.

ENCH 475 Ethics in Science and Engineering (3) Senior standing. Credit will be granted for only one of the following: ENCH468E or ENCH475. Formerly ENCH468E. Ethical issues in science and engineering and their resolutions. Scientific truth: proper data analysis, proper data presentation, and record-keeping. Human aspects: attribution, confidentiality, conflict of interests, mentoring and inclusion of underrepresented groups. Societal aspects: funding priorities, moral issues, responsibilities of engineers to clients, ecological issues, and human and animal subjects. Class meetings are organized around discussions, case studies, and student reports.

ENCH 476 Statistics and Experiment Design (3) Credit will be granted for only one of the following: ENCH468G or ENCH476. Formerly ENCH468G. Intelligent design of experiments and statistical analysis of data. Probability, probability distribution, error analysis; data collection, sampling, graphing; variance, significant tests. Cluster analysis and pattern recognition. Factorial design, combinatorial methods.

ENCH 482 Biochemical Engineering (3) Prerequisite: ENCH440. Introduction to biochemical and microbiological applications to commercial and engineering processes, including industrial fermentation, enzymology, ultrafiltration, food and pharmaceutical processing and resulting waste treatment. Enzyme kinetics, cell growth, energetics and mass transfer.

ENCH 483 Bioseparations (3) Credit will be granted for only one of the following: ENCH483 or ENCH468A. Formerly ENCH468A. Engineering fundamentals of separations and purification of biological molecules. Case studies and examples illustrate principles and practice of centrifugation, precipitation, crystallization, filtration, membrane separations, chromatography, and affinity separation of recombinant proteins and other biomolecules. Process scale-up and economics of biotechnology products and processes.

ENCH 484 Environmental Biochemical Engineering (3) Credit will be granted for only one of the following: ENCH468B or ENCH484. Formerly ENCH468B. Interdisciplinary solutions to complex environmental contamination problems; basic biological and biochemical engineering principles as applied to bioremediation. Transport of contaminants in various environments, aerobic and anaerobic biodegradation, ex situ and in situ bioremediation reactor design, reaction kinetics, process optimization, and modeling. Current regulatory issues governing the use of bioremediation processes.

ENCH 485 Biochemical Engineering Laboratory (3) Six hours of laboratory per week. Prerequisite: ENCH482. Techniques of measuring pertinent parameters in fermentation reactors, quantification of production variables for primary and secondary metabolites such as enzymes and antibiotics, the insolubilization of enzymes for reactors, and the demonstration of separation techniques such as ultrafiltration and affinity chromatography.

ENCH 490 Introduction to Polymer Science (3) Prerequisites: ENCH424 and ENCH440. Also offered as ENMA495. Credit will be granted for only one of the following: ENCH490 or ENMA495. The elements of the chemistry, physics, processing methods, and engineering applications of polymers.

ENCH 495 Manufacturing with Polymers (3) Prerequisite: ENES230. Credit will be granted for only one of the following: ENCH468M or ENCH495. Formerly ENCH468M. Introduction to issues associated with the use, manufacturing and processing of polymers; blending of materials, design and production of a polymer formulation, characterization of material properties. Teams work on an open-ended design problem of producing and characterizing a polymer formulation for advanced materials use.

ENCH 496 Processing of Polymer Materials (3) Prerequisite: ENCH424. Also offered as ENMA496. Credit will be granted for only one of the following: ENCH496 or ENMA496. A comprehensive analysis of the operations carried out on polymeric materials to increase their utility. Conversion operations such as molding, extrusion, blending, film forming, and calendaring. Development of engineering skills required to practice in the high polymer industry.

ENCH 497 Recycling of Waste Material (3) Prerequisites: ENCH424 and ENCH426. Credit will be granted for only one of the following: ENCH468R or ENCH497. Formerly ENCH468R. Introduction of municipal and industrial waste recycling technology. Unit operations and governing mathematical models for predicting equipment performance. Role of engineers in the recycling industry.

ENCO -- Engineering, Cooperative Education

ENCO 098 Co-op/Internship Work Experience () Programs are open to undergraduate and graduate students in all majors in the School of Engineering. Undergraduate students must have a 2.0 GPA to participate and graduate students a 3.0 GPA. Prerequisite: permission of department. Participation in a cooperative education (co-op) or internship program enables students to apply the theories that they have learned in their traditional classes with paid, supervised, career-related work experience that develops technical and professional work skills. Contact the Engineering Co-op & Career Services Office.

ENCO 099 Co-Op/Intern Work Experience () Programs are open to undergraduate and graduate students in all majors in the School of Engineering. Undergraduate students must have a 2.0 GPA to participate and graduate students a 3.0 GPA. Prerequisite: permission of department. Participation in a cooperative education (co-op) or internship program enables students to apply the theories that they have learned in their traditional classes with paid, supervised, career-related work experience that develops technical and professional work skills. Contact the Engineering Co-op & Career Services Office.

ENEE -- Electrical & Computer Engineering

ENEE Course Note for BS Degree in Electircal Engineering and Computer Engineering () NOTE: All lower-division CHEM, MATH, PHYS and Engineering courses that are required for the BS degree in Electrical and Computer Engineering must be completed before enrolling in any 300 or 400 level ENEE course. Transfer students will be allowed one term to complete all such courses after starting to take upper-level ENEE courses.

ENEE 132 Engineering and Modern Medicine (3) Not open to students with 09090 or 09991 major codes. Credit will be granted for only one of the following: ENEE189W or ENEE132. Formerly ENEE189W. An introduction to the role of electrical and computer engineering in modern medicine for non-majors. Survey of biomedical devices currently being developed or used to diagnose and treat medial conditions. An examination of all aspects of the process of bringing a new product or technology to market, including the roles of government and industry, as well as financial, legal, ethical and social consideration. All technical concepts needed in the course will be introduced at the appropriate time.

ENEE 140 Introduction to Programming Concepts for Engineers (2) For 09090 majors only. Prerequisite: permission of department. Introduction to the programming environment: editing, compiling, UNIX, data types and variable scope; program selection, formatted/unformatted input/output, repetition, functions, arrays and strings.

ENEE 150 Intermediate Programming Concepts for Engineers (3) For 09090 majors only. Departmental permission requires a score of 5 on the A Java AP exam, or a score of 4 or 5 on the AB Java AP exam, or satisfactory performance on the department's placement exam. Prerequisite: ENEE140 or permission of department. Corequisite: MATH140. Credit will be granted for only one of the following: ENEE114 or ENEE150. Formerly ENEE114. Advanced programming concepts: coding conventions and style; pointers; dynamic memory allocation and data structures; linked lists; graphs; abstract data types; object-oriented design. There will be team-based software projects and group presentations.

ENEE 159 Introductory Topics in Computer Engineering (1-4) Prerequisite: a grade of "C" or better in ENEE114; and permission of department. Repeatable to 8 credits if content differs. Selected introductory level topics in computer engineering.

ENEE 181 Explore Electronics (1) Three hours of laboratory per week. Prerequisite: permission of department. Corequisite: MATH140. A highly structured introduction to electronics and circuitry with a hands-on approach to learning. Students will build electronic devices (some of which they can keep) and test them. Among the topics covered are AC and DC circuits, BJTs, op-amps and special projects involving communication and sensing.

ENEE 200 Social and Ethical Dimensions of Engineering Technology (3) Sophomore standing. Designed for both engineeering and non-engineering students wishing to explore and assess the impact of engineering technology on society and the role of society in generating that technology. Special emphasis is placed on the interplay of diverse and often conflicting personal and collective values in both the development and implementation of new technologies. These subjects touch on many areas of interest including ethics, politics, business, the law, and society.

ENEE 204 Basic Circuit Theory (3) Two hours of lecture and one hour of discussion/recitation per week. Prerequisite: PHYS260 and PHYS261 (Formerly: PHYS262). Corequisite: MATH246. Basic circuit elements: resistors, capacitors, inductors, sources, mutual inductance and transformers; their I-V relationships. Kirchoff's Laws. DC and AC steady state analysis. Phasors, node and mesh analysis, superposition, theorems of Thevenin and Norton. Transient analysis for first- and second-order circuits.

ENEE 206 Fundamental Electric and Digital Circuit Laboratory (2) One hour of lecture and three hours of laboratory per week. Prerequisite: ENEE244. Corequisite: ENEE204. For ENEE majors 09090 only. Credit will be granted for only one of the following: ENEE206 or ENEE305. Formerly ENEE305. Introduction to basic measurement techniques and electrical laboratory equipment (power supplies, oscilloscopes, voltmeters, etc.) Design, construction, and characterization of circuits containing passive elements, operational amplifiers, and digital integrated circuits. Transient and steady-state response. This course is a prerequisite to all upper level ENEE laboratories.

ENEE 222 Elements of Discrete Signal Analysis (4) Three hours of lecture and two hours of discussion/recitation per week. Prerequisite: A grade of C (2.0) or higher in MATH141 and permission of department. For 09090 or 09991 majors only. Credit will be granted for only one of the following: ENEE222, ENEE241, or MATH242. Formerly ENEE241. Discrete-time and continuous-time signals, sampling. Linear transformers, orthogonal projections. Discrete Fourier Transform and its properties. Fourier Series. Introduction to discrete-time linear filters in both time and frequency domains.

ENEE 241 Numerical Techniques in Engineering (3) Three hours of lecture and one hour of discussion/recitation per week. Prerequisite: MATH141; and {ENEE114 or CMSC106 or equivalent} Restricted to Engineering, Math and Physics majors only. Also offered as MATH 242. Credit will be granted for only one of the following: ENES240 or ENEE241 or MATH242. Formerly ENES240. Introduction to error analysis, conditioning and stability of algorithms. Numerical solution of nonlinear equations. Vector spaces and linear transformations. Matrix algebra. Gaussian elimination. LU factorization, matrix inversion. Similarity transformations and diagonalization. Iterative computation of eigenvalues. Interpolation; splines; data fitting. Numerical integration.

ENEE 244 Digital Logic Design (3) Three hours of lecture and one hour of discussion/recitation per week. For 09090 or 09991 majors only. Sophomore standing and permission of department. The design and analysis of combinational and synchronous sequential systems comprising digital logic gates and flip-flop memory devices; underlying tools such as switching and Boolean algebras and Karnaugh map simplification of gate networks; design and use of decoders, multiplexers, encoders, adders, registers, counters, sequence recognizers, programmable logic arrays (PLAs), read-only memories (ROMS, PROMS), and similar devices. Arbitrary radix conversion. All lower-division CHEM, MATH, PHYS and Engineering courses that are required courses for the BS degree in Electrical Engineering and Computer Engineering must be completed before enrolling in any 300- or 400- ENEE course. Transfer students will be allowed one term to complete all such courses after starting to take upper-level ENEE courses.

ENEE 302 Digital Electronics (3) Prerequisite: ENEE204 and completion of all lower-division courses in the EE curriculum. Restricted to students with 09090 or 09991 major codes. See above note. Large signal terminal characteristics of PN junction diodes, Bipolar and MOSFET transistors. Digital electronics at transistor level: inverter, NAND, NOR AND, or gates. CMOS and TTL logic. Combinatorial and sequential digital circuits, memory design. Circuit simulation with SPICE.

ENEE 303 Analog and Digital Electronics (3) Three hours of lecture and one hour of discussion/recitation per week. Prerequisite: A grade of C or higher in ENEE204 and all other 200-level ENEE courses. Corequisite: ENEE307. For ENEE and ENCP majors only and permission of department. Not open to students who have completed ENEE302 or ENEE312. Credit will be granted for only one of the following: ENEE302 or ENEE303. Conceptual operation of transistors and diodes. Large and small signal operation of BJTs and MOSFETs. Basic transistor configurations. Logic circuits and semiconductor memory. Multi-transistor circuits including differential amplifiers and current mirrors. Frequency response.

ENEE 306 Electronic Circuits Design Laboratory (2) One hour of lecture and three hours of laboratory per week. Prerequisite: ENEE302. For ENEE majors 09090 only. Not open to students who have completed ENEE413. Formerly ENEE413. Students will design, construct and test analog and digital circuits at the transistor level. Bipolar and field effect transistors will be covered. Circuits designed will include common emitter and differential amplifiers, active filter, TTL and CMOS logic gates. Students should gain much of the background required for the design of modern microelectronic circuits.

ENEE 307 Electronic Circuits Design Laboratory (2) One hour of lecture and three hours of laboratory per week. Prerequisite: A grade of C or higher in ENEE204 and all other 200-level ENEE courses. Corequisite: ENEE303. For ENEE and ENCP majors only and permission of department. Not open to students who have completed ENEE306. Credit will be granted for only one of the following: ENEE306 and ENEE307. Students will design and test analog and digital circuits at the transistor level. FETs and BJTs will be covered. The laboratory experiments will be tightly coordinated with ENEE303 lectures.

ENEE 312 Semiconductor Devices and Analog Electronics (3) Prerequisite: ENEE302 and completion of all lower-division technical courses in the EE curriculum. Restricted to students with a 09090 major code. See above note. The basic physical operation of P-N junction diodes, MOSFET's and bipolar transistors. Basic transistor circuit configurations (CE, CC, CB, CS, CD, CG). DC bias; small signal analysis. Simple multi-transistor circuits: diff-amp; current mirror. Frequency response.

ENEE 313 Introduction to Device Physics (3) Two hours of lecture and one hour of discussion/recitation per week. Prerequisite: A grade of "C" (2.0) or higher in ENEE204 and all other 200-level courses. For ENEE and ENCP majors only and permission of department. Credit will be granted for only one of the following: ENEE312 or ENEE313. Basic physics of devices including fields in solids, crystal structure, properties of electrons and holes. Current flow in Si using drift-diffusion model. Properties of the pn junction. Properties of devices including BJTs, FETs and their physical characteristics.

ENEE 322 Signal and System Theory (3) Prerequisite: ENEE204 and MATH246 and completion of all lower-division technical courses in the curriculum. See above note. For ENEE majors only. Concept of linear systems, state space equations for continuous systems, time and frequency domain analysis of signals and linear systems. Fourier, Laplace and Z transforms. Application of theory to problems in electrical engineering.

ENEE 324 Engineering Probability (3) Prerequisite: ENEE322 and completion of all lower-division technical courses in the EE curriculum. See above note. Electrical Engineering and Computer Engineering majors may not substitute STAT400 for ENEE324. Credit will be granted for only one of the following: BMGT231, STAT400, or ENEE324. These courses are not interchangeable, consult your program requirements or advisor for what is acceptable toward your program of study. Axioms of probability; conditional probability and Bayes' rules; random variables, probability distribution and densities: functions of random variables: weak law of large numbers and central limit theorem. Introduction to random processes; correlation functions, spectral densities, and linear systems. Applications to noise in electrical systems, filtering of signals from noise, estimation, and digital communications.

ENEE 350 Computer Organization (3) Prerequisite: ENEE244 and completion of all lower-division technical courses in the EE curriculum. See above note. For 09090 and 09991 majors only. Electrical Engineering and Computer Engineering majors may not substitute CMSC 311 for ENEE350. Not open to students who have completed ENEE250. Formerly ENEE250. Structure and organization of digital computers. Registers, memory, control and I/O. Data and instruction formats, addressing modes, assembly language programming. Elements of system software, subroutines and their linkages.

ENEE 359 Intermediate Topics in Computer Engineering (1-3) Prerequisite: A grade of "C" or better in ENEE204, ENEE206, and ENEE244; and permission of department. Repeatable to 6 credits if content differs. Selected intermediate level topics in computer engineering.

ENEE 380 Electromagnetic Theory (3) Prerequisites: MATH241,(PHYS270 and 271 {Former PHYS263}) and completion of all lower-division technical courses in the EE curriculum. See above note. Introduction to electromagnetic fields. Coulomb's law, Gauss's law, electrical potential, dielectric materials capacitance, boundary value problems, Biot-Savart law, Ampere's law, Lorentz force equation, magnetic materials, magnetic circuits, inductance, time varying fields and Maxwell's equations.

ENEE 381 Electromagnetic Wave Propagation (3) Prerequisite: ENEE380 and completion of all lower-division technical courses in the EE curriculum. See above note. For ENEE majors only. The electromagnetic spectrum: Review of Maxwell's equations; the wave equation potentials, Poynting's theorem, relationship between circuit theory and fields; propagation of electromagnetic waves in homogeneous media and at interfaces; transmission line theory, waveguides, radiation and antennas.

ENEE 407 Microwave-Circuits Laboratory (2) One hour of lecture and three hours of laboratory per week. Prerequisite: ENEE206 and ENEE381 and completion of all lower-division technical courses in the EE curriculum. Restricted to students with a 09090 major code. Experiments concerned with circuits constructed from microwave components providing practical experience in the design, construction and testing of such circuits. Projects include microwave filters and S-parameter design with applications of current technology.

ENEE 408 Capstone Design Project (3) Prerequisite: permission of department. For 09090 and 09991 majors only. Repeatable to 6 credits if content differs. Culmination of prior course work in electrical and computer engineering. Utilization of modern design tools and methodologies for the design of components or systems under realistic constraints, with particular emphasis on teamwork and oral/written communication. Areas in which projects are currently offered include: microprocessor-based systems, digital systems, VLSI design (both digital and mixed-signal), and optical systems.

ENEE 416 Integrated Circuit Fabrication Laboratory (3) One hour of lecture and three hours of laboratory per week. Prerequisite: ENEE302 and completion of all lower-division technical courses in the EE curriculum. For 09090 and 09991 majors only. Not open to students who have completed ENEE419J. Formerly ENEE419J. Characterization of wafers and fabrication steps. Oxide growth, lithography, dopant diffusion, and metal deposition and patterning will be discussed in the lectures and carried out in the lab in fabricating NMOS transistor circuits. The transistor characteristics will be measured and related to the fabrication parameters.

ENEE 417 Microelectronics Design Laboratory (2) One hour of lecture and three hours of laboratory per week. Prerequisite: ENEE306 and ENEE312 and completion of all lower-division technical courses in the curriculum. For ENEE majors only. Senior capstone project laboratory, where student design and build fairly sophisticated circuits, mainly composed of discrete transistors and integrated circuits. Many of the projects are designed to require that students synthesize from what they have learned in many of the disciplines in electrical engineering. Students learn they can actually use their knowledge to build something very practical, which may include a high-fidelity amplifier, a radio, a memory cell, a transmitter, etc.

ENEE 419 Topics in Microelectronics (1-3) Prerequisite: permission of department and completion of all lower-division technical courses in the EE curriculum. Repeatable to any number of credits if content differs. For 09090 and 09991 majors only. Selected topics of current importance in microelectronics.

ENEE 420 Communication Systems (3) Prerequisite: ENEE324 and completion of all lower-division technical courses in the EE curriculum. See above note. Fourier series, Fourier transforms and linear system analysis; random signals, autocorrelation functions and power spectral densities; analog communication systems: amplitude modulation, single-sideband modulation, frequency and phase modulation, sampling theorem and pulse-amplitude modulation; digital communication systems pulse-code modulation, phase-shift keying, differential phase shift keying, frequency shift keying; performance of analog and digital communication systems in the presence of noise.

ENEE 425 Digital Signal Processing (3) Prerequisite: ENEE322 and completion of all lower-division technical courses in the EE curriculum. See above note. Sampling as a modulation process; aliasing; the sampling theorem; the Z-transform and discrete-time system analysis; direct and computer-aided design of recursive and nonrecursive digital filters; the Discrete Fourier Transform (DFT) and Fast Fourier Transform (FFT); digital filtering using the FFT; analog-to-digital and digital-to analog conversion; effects of quantization and finite-word-length arithmetic.

ENEE 426 Communication Networks (3) Prerequisite: ENEE324 and completion of all lower-division technical courses in the EE curriculum. Restricted to students with a 09090 major code. See above note. The main design issues associated with computer networks, satellite systems, radio nets, and general communication networks. Application of analytical tools of queuing theory to design problems in such networks. Review of proposed architectures and protocols.

ENEE 428 Communications Design Laboratory (2) One hour of lecture and three hours of laboratory per week. Prerequisite: ENEE324 and completion of all lower-division technical courses in the EE curriculum. See above note. Corequisite: ENEE420 or ENEE425. For ENEE majors only. EE capstone design course. Exploring the signal processing and communication systems theoretical concepts presented in ENEE 420 Communication Systems and ENEE 425 Digital Signal Processing by implementing them on actual DSP based hardware in real time.

ENEE 429 Topics in Communications (1-3) Prerequisite: permission of department and completion of all lower-division technical courses in the EE curriculum. Repeatable to any number of credits if content differs. For 09090 and 09991 majors only. Selected topics of current importance in communications.

ENEE 434 Introduction to Neural Networks and Signals (3) Prerequisite: ENEE204 and completion of all lower-division technical courses in the EE curriculum. See above note. Introduction to the generation and processing of bioelectric signals including structure and function of the neuron, membrane theory, generation and propagation of nerve impulses, synaptic mechanisms, transduction and neural coding of sensory events, central nervous system processing of sensory information and correlated electrical signals, control of effector organs, muscle contraction and mechanics, and models of neurons and neural networks.

ENEE 435 Introduction to Electrical Processes, Structure and Computing (3) Models of the Brain Prerequisite: ENEE204 and completion of all lower-division technical courses in the EE curriculum. Concepts, theoretical and experimental probing methods and models for understanding the human brain structures and functions from an engineering viewpoint. Bioelectric phenomena of cells and electrical circuit functional models. Neurons as signal generators, decision elements, and information transmission and processing devices. Basic neural circuits and models. Experimental techniques, signal recording and analysis. Brain architecture-communication, control and information processing structures and functions. Memory, associations learning and higher brain functions. Computer simulations and computational models. Overview of brain-inspired intelligent machine approaches and systems.

ENEE 439 Topics in Signal Processing (1-3) Prerequisite: permission of department and completion of all lower division technical courses in the EE curriculum. Repeatable to any number of credits if content differs. For 09090 and 09991 majors only. Selected topics of current importance in signal processing.

ENEE 440 Microprocessors (3) Prerequisite: ENEE350 and completion of all lower-division technical courses in the EE curriculum. See above note. For 09090 and 09991 majors only. Microprocessor architectures, instruction sets, and applications. Bus structures, memory, I/O interfacing. Assembly language programming, LSI device configuration, and the embedding of microprocessors in systems.

ENEE 445 Computer Laboratory (2) One hour of lecture and three hours of laboratory per week. Prerequisites: ENEE206 and ENEE350; and completion of all lower-division technical courses in the EE curriculum. For 09090 and 09991 majors only. This laboratory course focuses on the hardware/software interface in computer systems. Hand-on experiments are used to teach design, construction, analysis, and measurement of both hardware and software for embedded systems. Projects emphasize using microcontrollers for control, sensing, and communication through various I/O devices.

ENEE 446 Digital Computer Design (3) Prerequisite: ENEE350 and completion of all lower-division technical courses in the EE curriculum. See above note. Hardware design of digital computers. Arithmetic and logic units, adders, multipliers and dividers. Floating-point arithmetic units. Bus and register structures. Control units, both hardwired and microprogrammed. Index registers, stacks, and other addressing schemes. Interrupts, DMA and interfacing.

ENEE 447 Operating Systems (3) Prerequisites: ENEE350, experience in C or C++, and familiarity with UNIX, and completion of all lower-division technical courses in the EE curriculum. For 09090 and 09991 majors only. Not open to students who have completed ENEE459S. Formerly ENEE459S. The goal of this course is to present the theory, design, implementation and analysis of computer operating systems. Through classroom lectures, homework, and projects, students learn the fundamentals of concurrency, and process management, interprocess communication and synchronization, job scheduling algorithms, memory management, input/output devices, file systems, and protection and security in operating systems. Optional topics may include communications protocols, computer security, and real-time operating systems.

ENEE 459 Topics in Computer Engineering (1-3) Prerequisite: permission of department and completion of all lower-division technical courses in the EE curriculum. Repeatable to any number of credits if content differs. For 09090 and 09091 majors only. Selected topics of current importance in computer engineering.

ENEE 460 Control Systems (3) Prerequisite: ENEE322 and completion of all lower-division technical courses in the EE curriculum. See note above. For ENEE majors only. Mathematical models for control system components. Transform and time domain methods for linear control systems. Introductory stability theory. Root locus, bode diagrams and Nyquist plots. Design specifications in the time and frequency domains. Compensation design in the time and frequency domain. Introduction to sampled data systems.

ENEE 461 Control Systems Laboratory (3) Two hours of lecture and three hours of laboratory per week. Prerequisite: A grade of C or higher in ENEE206 and ENEE322. Completion of all lower-division technical courses in the EE curriculum. Restricted to students with a 09090 or 09991 major code. See above note. Credit will be granted for only one of the following: ENEE461, ENME461, or ENME489N. Students will design, implement, and test controllers for a variety of systems. This will enhance their understanding of feedback control and familiarize them with the characteristics and limitations of real control devices. They will also complete a small project. This will entail writing a proposal, purchasing parts for their controller, building the system, testing it, and writing a final report describing what they have done.

ENEE 463 Digital Control Systems (3) Prerequisites: ENEE322 and completion of lower-division technical courses in the EE curriculum. For 09090 and 09991 majors only. Not open to students who have completed ENEE469E. Formerly ENEE469E. Introduction to techniques for the analysis and design of linear control systems and implementation of control systems using digital technology. Topics include linearization, solution of linear equations, z-transforms and Laplace transforms, design of linear controllers, optimal control, and digital implementation of control designs. Students will use MATLAB for the solution of problems and the design of control systems.

ENEE 469 Topics in Controls (1-3) Prerequisites: permission of department and completion of all lower-division technical courses in the EE curriculum. Repeatable to any number of credits if content differs. For 09090 and 09991 majors only. Selected topics of current importance in controls.

ENEE 473 Electrical Machines Laboratory (2) One hour of lecture and three hours of laboratory per week. Prerequisite: ENEE206 and completion of all lower-division technical courses in the EE curriculum. Restricted to students with a 09090 major code. See above note. Experiments involving single and three phase transformers, induction machines, synchronous machines and D.C. machines.

ENEE 474 Power Systems (3) Prerequisite: ENEE322 and completion of all lower-division technical in the EE curriculum. See above note. Interconnected power systems, transmission lines, load flow studies, unit commitment and economic dispatch. Three phase networks, machine models. Symmetrical components, fault analysis and unbalanced operation. Power system transients, stability and numerical methods in power system analysis.

ENEE 475 Power Electronics (3) Prerequisite: ENEE302 and completion of all lower-division technical courses in the EE curriculum. See above note. For ENEE majors only. This course is suitable for undergraduate and graduate students who want to learn the basic principles of power electronics and its applications. Special emphasis is placed on interdisciplinary nature of power electronics. Strong and intimate connections between power electronics and circuit theory, electronic circuits, semiconductor devices, electric power, magnetic, motor drives and control are stressed.

ENEE 480 Fundamentals of Solid State Electronics (3) Prerequisite: ENEE302 and completion of all lower-division technical courses in the EE curriculum. See above note. Crystal structure and materials preparation; carrier transport; elementary quantum mechanics applied to solids; band structure of metals, insulators, and semiconductors; field effect transistors; PN junctions; bipolar transistors; fabrication of devices.

ENEE 482 Design of Active and Passive Microwave Devices (3) Prerequisite: ENEE381 and completion of all lower-division technical courses in the EE curriculum. See above note. Design and operation of passive and active microwave devices. The passive components include waveguides, resonators, and antennas. The active devices include klystrons, magnetrons, gyrotrons, and free electron lasers.

ENEE 486 Optoelectronics Lab (2) One hour of lecture and three hours of laboratory per week. Prerequisite: ENEE206 and (PHYS270 and 271 {Formerly: PHYS263}) and completion of all lower-division technical courses in the EE curriculum. Restricted to students with a 09090 major code. Hands-on experience in performing measurements in optics and electro-optics. Basics of optics, light detectors, Fourier optics, gratings and spectrometers, pulsed dye lasers, fiber optics, electro-optics, and acousto-optics.

ENEE 488 Independent Study in Electrical and Computer Engineering (1-3) Prerequisite: completion of all lower-division EE or CP tech electives with a grade of C or higher and permission of department. A total of 5 credits combined of ENEE488 and ENEE499 can count towards a degree in electrical and computer engineering. For 09090 or 09991 majors only. Repeatable to 9 credits if content differs. The purpose is to provide students with an opportunity for independent study projects on advanced electrical and computer engineering topics. These projects typically involve academic investigations of technical themes that are not addressed in the established elective and special topics courses taught by the department on a regular basis. Study plans are tailored to students educational goals but are approved and supervised by faculty.

ENEE 489 Topics in Electrophysics (1-3) Prerequisites: permission of department and completion of all lower-division technical courses in the EE curriculum. Repeatable to any number of credits if content differs. For 09090 and 09991 majors only. Selected topics of current importance in electrophysics.

ENEE 490 Physical Principles of Wireless Communications (3) Prerequisite: ENEE381 Restricted to ENEE and ENCP students. Not open to students who have completed ENEE498B. Credit will be granted for only one of the following: ENEE490 or ENEE498B. Formerly ENEE498B.

ENEE 496 Lasers and Electro-optic Devices (3) Prerequisite: Completion of all lower-division technical courses in the EE curriculum. Corequisite: ENEE381 For 09090 and 09991 majors only. Modern physical optics: Gaussian beams, optical resonators, optical waveguides; theory of laser oscillation, rate equations; common laser systems. Selected modern optoelectronic devices like detectors and modulators. Role of lasers and optoelectronics in modern technology.

ENEE 498 Topics in Electrical Engineering (1-3) Prerequisites: permission of department and completion of all lower-division technical courses in the EE curriculum. See above note. Repeatable to any number of credits if content differs. For 09090 majors only. Formerly ENEE488. Selected topics of current importance in electrical engineering.

ENEE 499 Senior Projects in Electrical and Computer Engineering (1-5) Prerequisites: permission of instructor and department; and completion of all lower-division technical courses in the EE curriculum. See above note. For 09090 majors only. A total of 5 credits combined of ENEE448 and ENEE499 can count towards a degree in electrical or computer engineering. Repeatable to 09 credits if content differs. Formerly ENEE418. The purpose is to provide students with an opportunity to engage in independent research projects on advanced electrical and computer engineering topics. Projects are selected by students and supervised by faculty and other qualified mentors. While students may be required to acquire new skills or information in the course of completing a 499 project, the focus is to conduct an independent investigation of a technical theme by the student. The project may be used to satisfy the advanced lab requirement if it is approved as a primarily - experimental research project. In that case, the student will enroll in ENEE499L.

ENES -- Engineering Science

ENES 100 Introduction to Engineering Design (3) One hour of lecture, two hours of laboratory, and two hours of discussion/recitation per week. Corequisite: MATH140. Students work as teams to design and build a product using computer software for word-processing, spreadsheet, CAD, and communication skills.

ENES 102 Statics (3) Two hours of lecture and two hours of discussion/recitation per week. Corequisite: MATH140. For engineering majors only. Formerly ENES110. The equilibrium of stationary bodies under the influence of various kinds of forces. Forces, moments, couples, equilibrium, trusses, frames and machines, centroids, moment of inertia, beams, friction, stress/strain, material properties. Vector and scalar methods are used to solve problems.

ENES 104 Introduction to Materials and their Applications (3) Restricted to Young Scholars Program. Creating a new technology, nanotechnology, biotechnology, or plastic electronics requires developing the materials first. In this class we'll explore materials science and engineering where engineers change the properties and/or behavior of a material to make them more useful. The course covers the chemical composition, phase transformations, corrosion and mechanical properties of materials as well as their electrical, thermal, magnetic and optical properties. Learn about the unlimited possibilities for innovation and adaption through the exciting field of nanotechnology.

ENES 106 Job Search Strategies for Engineering Students (1) For Engineering majors only. Credit will be granted for only one of the following: EDCP108J or ENES106. Formerly EDCP108J. Course designed for engineering students seeking co-op or internship positions, although any interested engineering student may enroll. Learn and practice effective job search skill and techniques including writing resumes and cover letters, interviewing, evaluating job offers, negotiating salaries, transitioning from school to work, and making the most of your job experience.

ENES 115 FLEXUS Living and Learning Community Seminar I (1) Prerequisite: Restricted to first year FLEXUS Participants (coded as WCY). The seminar focuses on personal and professional development related to the field of engineering with a strong emphasis on clarifying career goals and decisions. Additional topics include an introduction to campus and engineering resources, basic tools, and undergraduate research opportunities. Students will discuss issues of concern through a variety of book readings, self-reflections, and panel discussions with practicing women engineers.

ENES 116 FLEXUS Living and Learning Community Seminar II (1) Prerequisite: ENES115; Restricted to first year FLEXUS participants (coded as WCY). The seminar focuses on personal and professional development by enhancing technical ability, understanding educational options through minors and student projects in engineering, identifying and employing strategies and skills for academic and professional success, and developing career commitment through networking and mentoring. Students develop professional portfolios in preparation for a future internship or job.

ENES 140 Discovering New Ventures (3) Two hours of lecture and one hour of discussion/recitation per week. This course may count as an elective for a student at the University of Maryland, depending on the student's specific degree program. It cannot be counted towards the requirements for the Smith School of Business Entrepreneurship Fellow Program.. Students explore dynamic company startup topics by working in teams to design a new venture. This multi-disciplinary course helps students to learn the basic business, strategy, and leadership skills needed to launch new ventures. Topics include learning how to assess the feasibility of a startup venture, as well as how to apply best practices for planning, launching, and managing new companies. Students discuss a wide range of issues of importance and concern to entrepreneurs and learn to recognize opportunities, assess the skills and talents of successful entrepreneurs, and learn models that help them navigate uncertainty.

ENES 160 Inventis Colloquium (1) Restricted to Students in the Inventis Program. A colloquium on a variety of engineering topics. Attendance at various additional activities and events is required.

ENES 170 Inventis - Professional Concepts in Engineering (1) Restricted to students in the Inventis program. Engineering professional concepts course focusing on emerging technologies, career opportunities for engineering, ethics in engineering, engineering in the context of the society, and technological entrepreneurship.

ENES 180 Dialogue with the Dean (1) One hour of lecture per week. For new transfer and freshmen Engineering majors only. Introduction to Engineering as a Profession, Overview of Martin Institute and Clark School Education and Research Programs, The Future of Engineering and Engineering Education Basic Technological Literacy, Business and Entrepreneurship Issues for Engineers, the Joy of Discovery, Student Projects: How to get involved, Research and Development Programs: How to get involved, what the corporate sector expects from a new engineering graduate.

ENES 181 Dialogue with the Dean (1) Prerequisite: new students only - transfers and freshmen. For ENGR majors only. Introduction to Engineering as a Profession, Overview of Martin Institute and Clark School Education and Research Programs, The Future of Engineering and Engineering Education, Basic Technological Literacy, Business and Entrepreneurship Issues for Engineers, the Joy of Discovery, Student Projects: How to get involved, Research and Development Programs: How to get involved, What the corporate sector expects from a new engineering graduate.

ENES 182 Engineering the Future (1) An overview of the challenges facing society where the fields of engineering and science are being asked to provide the technologies underlying the proposed solutions including nanotechnology, sustainable energy, transportation, biotechnology, climate change, novel material and environmental impact. Also covered will be an understanding of how the different fields of engineering will play a role in solving these challenges.

ENES 190 Introduction to Design and Quality (4) Three hours of lecture and two hours of discussion/recitation per week. Prerequisite: permission of college. Also offered as BMGT190. Credit will be granted for only one of the following: BMGT190 or ENES190. Expose engineering and business students to the principles of total quality, using experiential team learning and technology aided approaches. The first of four courses in total quality.

ENES 201 Introduction to Computer Aided Design (1) Fundamentals of CAD using a solid modeling package (e.g. Pro/E or AutoCAD). Two- and three-dimensional drawings. Dimensioning and specifications. Introduction of CAD-based analysis tools. Students will complete a design project.

ENES 210 Entrepreneurial Opportunity Analysis and Decision-Making in 21st (3) Century Technology Ventures Two hours of lecture and one hour of discussion/recitation per week. This multi-disciplinary course helps students learn the principles of entrepreneurial opportunity analysis and decision-making in an increasingly dynamic and technically-inclined society. Emphasis is placed on how aspiring technology entrepreneurs can develop their entrepreneurial perspectives to develop winning entrepreneurial plans for their future ventures.

ENES 215 FLEXUS Living and Learning Community Seminar III (1) Prerequisite: ENES115 and ENES116. Restricted to second year FLEXUS participants (coded as WCY). The seminar focuses on personal, academic and professional success by cultivating leadership skills, developing self-confidence and self-efficacy in academic and technical ability and encouraging self awareness, identifying and employing strategies for academic and professional success, further enhancing career development through networking, mentoring and role modeling, and developing awareness of diversity issues, specifically gender diversity.

ENES 216 FLEXUS Living and Learning Community Seminar IV (1) Prerequisite: ENES115, ENES116, and ENES215. Restricted to second year FLEXUS Participants (coded as WCY). The seminar focuses on gender diversity and its cross-sections with culture. Students continue to enhance their leadership and mentoring skills, participate in networking opportunities with women in leadership roles and careers in engineering, and engage in opportunities for outreach and service-learning. Students will also complete a culminating semester project.

ENES 220 Mechanics of Materials (3) Prerequisites: ENES102; and MATH141; and PHYS161. For engineering majors only (not including ENEE majors). Stress and deformation of solids-rods, beams, shafts, columns, tanks, and other structural, machine and vehicle members. Topics include stress transformation using Mohr's circle; shear and moment diagrams; derivation of elastic curves; and Euler's buckling formula. Design problems related to this material are given in lab.

ENES 221 Dynamics (3) Two hours of lecture and two hours of laboratory per week. Prerequisites: ENES102 or ENES110; and MATH141; and PHYS161. Systems of heavy particles and rigid bodies at rest and in motion. Force-acceleration, work-energy and impulse-momentum relationships. Motion of one body relative to another in a plane and in space.

ENES 230 Introduction to Materials and Their Applications (3) Prerequisite: ENES100 or permission of department. Structure of materials, chemical composition, phase transformations, corrosion and mechanical properties of metals, ceramics, polymers and related materials. Material selection in engineering applications.

ENES 270 Inventis-Professional Skills in Engineering (1) Restricted to students in the Inventis program. Prerequisite: ENES170. Engineering professional skills course focusing on team building, communication skills, technical writing, technology management, and intellectual property and standards.

ENES 317 Introduction to Engineering Leadership (3) Prerequisite: permission of department. Recommended: ENES100 or equivalent. Focus is placed on general leadership theories in addition to real-world applications of leadership in engineering education, industry, and government.

ENES 380 Methods for Measuring Quality (3) Prerequisite: BMGT190 or ENES190. Also offered as BMGT290. Provides engineering and business students an understanding of the need and use of measurement techniques that lead to continuous improvement. The second course of four courses in total quality.

ENES 386 Experiential Learning (3-6) Prerequisite: permission of department. Junior standing.

ENES 388 Engineering Honors Seminar (1)

ENES 389 Selected Topics (3) Repeatable to 6 credits if content differs.

ENES 390 Systems Thinking for Managerial Decision Making (3) Prerequisite: BMGT190H or ENES190H. For

QUEST students only. Also offered as BMGT390. Credit will be granted for only one of the following: BMGT390, BMGT498X, ENES390, or ENES498X. An introduction to the theory, concepts, tools, and practices of systems thinking to enhance managerial decision making. Offers a blend of theory, real-life examples, and proven methods to initiate and sustain an organization-wide reorientation towards systems thinking.

ENES 424 Engineering Leadership Capstone (3) Prerequisite: ENES317, ENES320, ENES472 and permission of department. Recommended: ENES100 or equivalent. The work initiated in the Introduction to Engineering Leadership course brings together further exploration of leadership styles and concepts.

ENES 435 Product Liability and Regulation (3) Junior standing. Key topics include, biotechnology, safety regulation, federal preemption, product liability, professional negligence, antitrust, privacy and information technology, risk modeling, environmental protection, patent, copyright, trade secrets, reverse engineering, scientific and technological evidence, international trade, engineering ethics. Examples include plane crashes, computer chip protection, human machine interfaces, nuclear power plants, internet censorship, flood control, earthquakes and biomedical technology.

ENES 440 Science, Technology and Society: Certificate Program Capstone (3) Prerequisite: STS certificate students or permission of department. Credit will be granted for only one of the following: ENES440 or UNIV401. Formerly UNIV401. Capstone research seminar for students in the Science, Technology and Society certificate program.

ENES 458 Topics in International Engineering (1-4) Prerequisite: ENES100. Repeatable to 12 credits if content differs. A variety of topics related to engineering in a global context are discussed including cultural aspects, cross-cultural communication, international standards and law, and engineering and technology issues, business behavior, attitudes and values of selected countries and regions.

ENES 460 Fundamentals of Technology Start-Up Ventures (3) Also offered as BUSI758T. Formerly ENES489A. Fundamental aspects of creating, organizing, funding, managing, and growing a technology startup venture. This multidisciplinary course will draw on management, business, legal, financial, as well as technical, concepts. Students form teams and develop a business plan for a technology company, based on each team's own business idea and then present the plan to a panel of outside experts.

ENES 472 International Business Cultures in Engineering and Technology (3) Prerequisite: permission of department. Sophomore standing. Also offered as SLLC472. Credit will be granted for only one of the following: ARHU439B, ARHU439E, ARHU439T, ENES472, SLLC471, SLLC472 or SLLC473. Formerly ARHU439T. The goal is to provide students with an understanding of cultural aspects pertaining to global business and engineering and develop the cultural understanding, attitudes, and communication skills needed to function appropriately within an increasingly global and multicultural working environment.

ENES 478 Topics in Engineering Education (1) Restricted to students in Engineering Teaching Fellow Program. Repeatable to 3 credits if content differs. Topics related to teaching engineering courses, particularly project-based courses. Topics can include learning styles, student development theory, multicultural issues in teaching, facilitating team experiences, assessment, and academic integrity.

ENES 480 Engineering Honors Seminar I (1) Prerequisite: membership in College of Engineering Honors. Junior standing. Introduction to engineering leadership, professionalism, and ethics. Discussions of leadership style, elements of success, professional communication, codes of ethics, handling of ethical dilemmas, and the characteristics of a professional.

ENES 481 Engineering Honors Seminar II (1) Prerequisite: membership in College of Engineering Honors. Junior standing. Introduction to engineering creativity and innovation in engineering. Application of methods of creativity to topics in communication, conducting research, and leadership.

ENES 489 Special Topics in Engineering (3-6) Prerequisite: permission of department. Repeatable to 6 credits if content differs. Special topics in engineering.

ENES 490 Quest Consulting and Innovation Practicum (4) Prerequisite: BMGT390 or ENES390. Also offered as BMGT490. Credit will be granted for only one of the following: BMGT490 or ENES490. Final course in the QUEST Honors Fellows Program three-course curriculum. Based on a team-based consulting project with one of QUEST's professional partners. A project advisor and professional champion supervise each student team. Requires extensive out-of-class work.

ENES 496 NASA Academy (4) Two hours of lecture and four hours of laboratory per week. Prerequisite: college permission. Junior standing. Also offered as CMPS496 or GEOG496. Credit will be granted for only one of the following: CMPS496, ENES496 or GEOG496. A ten-week resident summer institute at Goddard Space Flight Center for juniors, seniors and first-year graduate students interested in pursuing professional and leadership careers in aerospace-related fields. The national program includes research in a Goddard laboratory, field trips to NASA centers, and a combination of lectures and workshops on the mission, current activities and management of NASA. Students interested in the Academy will find information at http://nasa-academy.nasa.gov Application should be made by the end of January; sponsorship by an affiliated State Space Grant Consortium is customary, but not required.

ENES 498 Special Topics in Entrepreneurship (3) Two hours of lecture per week. Prerequisite: Hinman CEO's membership. Repeatable to 12 credits if content differs. This entrepreneurship seminar and case study-based course will explore technology entrepreneurship with a focus on leadership, marketing, team-building, and management of new technology ventures and assumes baseline knowledge of entrepreneurship. Students will learn skills needed to succeed as a technology entrepreneur and how to apply best practices for planning, launching, and growing new companies. This course is a requirement of the Hinman CEOs program.

ENES 508 Engineering Professional Development for Teachers (1-6) Two hours of lecture and three hours of laboratory per week. Prerequisite: permission of department. For non-engineering majors only. Repeatable to 6 credits if content differs. An introduction to the fundamental concepts that underlie engineering and the process that engineers use in solving technological problems and in design work. Problems in experimental analysis are demonstrated through laboratory experiments. The laboratory work provides the basis for introductory design.

ENFP -- Engineering, Fire Protection

ENFP 108 Hot Topics in Fire Protection Engineering (1) Repeatable to 2 credits if content differs. Current issues of importance to fire protection engineering. Topics focus on advances in basic fire science, computerized fire modeling, safety systems, human behavior and fire, fire toxicity, risk analysis, performance based fire safety, fire reconstruction, arson and evidence, voluntary fire safety standards, codes, and relations with other disciplines including architecture and the built environment, loss prevention and fire insurance.

ENFP 210 Fire and Western Culture (3) Fire and Western Culture: Human interaction with fire as both destructive and productive force from ancient cultures to the present. Fire in war, agriculture, religion, art, industry, philosophy, science, urban development, engineering, criminal law, including arson and modern environmental protection.

ENFP 250 Introduction to Life Safety Analysis (3) Prerequisite: permission of department. Credit will be granted for only one of the following: ENFP421 or ENFP250. Formerly ENFP251. Introduction to fire protection engineering and building regulation, building safety systems, and egress system design. Evacuation modeling. Human behavior in fires. Tenability Analysis.

ENFP 255 Fire Alarm and Special Hazards Design (3) Prerequisite: permission of department. Formerly ENFP315. Study of fire detection and alarm and gaseous and particulate fire suppression systems. Examination and evaluation of design criteria, performance specifications and research. Application of elementary fluid theory to the design and calculation procedures for gaseous and particulate fire suppression systems. An integrated fire protection systems design project.

ENFP 300 Fire Protection Fluid Mechanics (3) Prerequisites: MATH246 and (PHYS260 and PHYS261 {Formerly: PHYS262}). Basic principles of fluid flow. Properties of a fluid, velocity field, flow patterns. Pressure distribution in a fluid. Hydrostatic and hydrodynamic problems. Integral relations for control volumes. Differential relations, dimensional analysis and similarity. Internal and external flow problems associated with fire protection systems and fire scenarios.

ENFP 310 Water Based Fire Protection Systems Design (3) Prerequisite: ENFP300 and permission of department. Corequisite: ENFP312. Introduction to aqueous fire suppression. Discussion of key fluid dynamics and heat transfer processes in aqueous fire suppression. System design and performance analysis based on national standards, hydraulic theory and elementary fluid dynamics and heat transfer.

ENFP 312 Heat and Mass Transfer (3) Prerequisites: (ENCH300, ENME320 or ENME232) and (ENFP300, ENCE330 or ENME331). Fundamentals of heat and mass transfer. Conduction, convection, radiation modes of heat transfer. Diffusion concepts and evaporation phenomena. Problem solving techniques with application to fire problems.

ENFP 320 Fire Assessment Methods and Laboratory (4) Three hours of lecture and two hours of laboratory per week. For ENFP majors only. Experimental evaluation of ignition, flame spread, rate of heat release and smoke production of furnishings and interior finish materials.

ENFP 350 Professional Development Seminar (1) One hour of lecture, discussion, seminar or invited speakers per week. Prerequisite: permission of department. Junior standing. Not open to students who have completed ENFP450. Credit will be granted for only one of the following: ENFP350 or ENFP450. Formerly ENFP450. An integrative, upper level professional development seminar covering topics such as engineering ethics, professional licensing, codes and standards, intellectual property, career selection and various contemporary issues in fire protection engineering.

ENFP 405 Structural Fire Protection (3) Prerequisite: ENES220. For ENFP majors only. Effects of elevated temperature on structural materials; steel, concrete, wood, gypsum, glass and reinforced plastics. Experimental evaluation of fire resistance of building assemblies. Analytical methods to evaluate fire resistance of structural members.

ENFP 411 Fire Risk Assessment (3) Prerequisites: ENFP250, ENFP255 and permission of department. Appraisal and measurement of fire safety. Application of systems analysis, probability theory, engineering economy, and risk management in the identification and synthesis of components of fire protection engineering. Methods for the development of criteria for the design, evaluation and assessment of fire safety or component hazards.

ENFP 415 Fire Dynamics (3) Prerequisites: ENFP300 or ENME331; and ENME320; and ENFP312 or permission of department. Introduction to premixed and diffusion flames; ignition, flame spread and rate of burning; fire plumes; flame radiation.

ENFP 416 Problem Synthesis and Design (3) Senior standing. Techniques and procedures of problem orientation and solution design utilizing logical and numerical procedures. Student development of research projects in selected areas.

ENFP 425 Fire Modeling (3) Prerequisite: permission of department. Senior standing. For ENFP majors only. An introduction to the elements of enclosure fires through the development of fire modeling algorithms and the application of computer-based fire modeling techniques. Numerical techniques, including curve-fitting, root-finding, integration and the solution of ordinary differential equations, are developed in the context of enclosure fire modeling applications. Math software packages, including primarily spreadsheet programs, are used to address and solve a variety of enclosure fire problems.

ENFP 429 Independent Studies (1-3) Prerequisite: permission of department. For ENFP majors only. Repeatable to 6 credits if content differs. For students who have definite plans for individual study of approved problems, or study of an advanced topic selected in conjunction with the faculty.

ENFP 431 Building Safety and the Law (3) Junior standing. Responding to natural and manufactured building hazards requires a complex legal environment, including regulation and liability. Key topics include the use of model codes, administrative regulation, retrospective codes, federal preemption, arson, performance based codes, risk based regulation, engineering malpractice, product liability and disaster investigation.

ENFP 435 Product Liability and Regulation (3) Junior standing. Key topics include, biotechnology, safety regulation, federal preemption, product liability, professional negligence, antitrust, privacy and information technology, risk modeling, environmental protection, patent, copyright, trade secrets, reverse engineering, scientific and technological evidence, international trade, engineering ethics. Examples include plane crashes, computer chip protection, human machine interfaces, nuclear power plants, internet censorship, flood control, earthquakes and biomedical technology.

ENFP 489 Special Topics (3) Prerequisite: permission of department. Repeatable to 6 credits. Selected topics of current importance to fire protection.

ENGL -- English

ENGL 101 Introduction to Writing (3) An introductory course in expository writing.

ENGL 181 English Grammar (1) Not open to students who have completed ENGL281 or JOUR181. Credit will be granted for only one of the following: ENGL181 or JOUR181. The basic structure of formal written English, including parts of speech, sentence patterns, standard punctuation, diction, and usage.

ENGL 201 Literature of the Western World I: Ancient and Medieval (3) Readings of authors, works, and genres, largely continental, in the early Western literary tradition. Readings such as selections from the Bible, Homer, Sophocles, Aeschylus, Sappho, Virgil, Ovid, Seneca, Augustine, Dante, medieval romance.

ENGL 202 Literature of the Western World II: Renaissance to Modern (3) Readings of major authors, works, and genres, largely continental, in the late Western literary tradition. Readings may include Cervantes, Calderon, Moliere, Voltaire, Goethe, Dostoevsky, Ibsen, Chekhov, Flaubert, Sand, Camus, drama, the rise of the novel.

ENGL 205 Introduction to Shakespeare (3) Recommended for non-majors. Reading of representative works. Genre, action, character, theme, language, and staging. Shakespeare's relation to Renaissance culture.

ENGL 210 Love, Adventure, and Identity in Early English Literature (3) The themes of love, evil, adventure, heroism and others as they are revealed in the early English epic, romance and novel. Texts include Beowulf, Sir Gawain and the Green Knight, Othello, Robinson Crusoe, and others.

ENGL 211 English Literature: Beginnings to 1800 (3) Surveys medieval and early modern literary works written in England. Readings may include Beowulf, Chaucer, Spenser, Mary Wroth, Milton; eighteenth-century satire, drama, novels.

ENGL 212 English Literature: 1800 to the Present (3) Surveys the major literary movements of the period, from Romantic to Victorian to Modern. Such authors as Wordsworth, Keats, Bronte, Tennyson, Browning, Yeats, Joyce, Woolf.

ENGL 221 American Literature: Beginning to 1865 (3) Surveys American writing from the founding of the colonies through the Civil War. Authors such as Taylor, Cooper, Poe, Dickinson.

ENGL 222 American Literature: 1865 to Present (3) Surveys American writing from the Civil War through the Cold War. Authors such as Clemens, Frost, Hurston, Bellow.

ENGL 233 Introduction to Asian American Literature (3) Also offered as AAST233. Not open to students who have completed AAST233 or AAST298L. Credit will be granted for only one of the following: AAST233, AAST298L or ENGL233. A survey of Asian American literatures with an emphasis on recurrent themes and historical context.

ENGL 234 Introduction to African-American Literature (3) A survey of African-American literature from the late 18th century to the present.

ENGL 235 Introduction to the Literatures of the African Diaspora (3) Not open to students who have completed CMLT235. Credit will be granted for only one of the following: CMLT235 or ENGL235. Authors, periods, and genres that reflect the diversity of African and African Diaspora cultures.

ENGL 240 Introduction to Fiction, Poetry, and Drama (3) Not open to students who have completed ENGL102. Readings in the novel, short story, poetry and drama.

ENGL 241 Introduction to the Novel (3) Historical, formal, social questions about the genre. Readings drawn from a range of cultures and communities.

ENGL 242 Introduction to Nonfiction Prose (3) A survey of the major genres of nonfiction porse including biography and autobiography, nature and travel writing, history, the essay and new journalism. Focus on historical development of each genre and effective prose style.

ENGL 243 Introduction to Poetry (3) How poetry works. Focus on style, subject, rhythm, voice, technique and structure. Readings from a range of cultures and communities.

ENGL 244 Introduction to Drama (3) A survey of the basic literature of drama from the classical Greeks to modern times.

ENGL 245 Film and the Narrative Tradition (3) Primary attention is on the film as a narrative medium, but other literary models will be examined.

ENGL 246 Introduction to the Short Story (3) A survey of the genre, with a focus on significant elements, such as plot, character, description, style, and theme. Readings will be drawn from a range of cultures and communities.

ENGL 250 Introduction to Literature by Women (3) Also offered as WMST255. Credit will be granted for only one of the following: ENGL250 or WMST255. Images of women in literature by and about women.

ENGL 260 Introduction to Folklore (3) Surveys a wide range of folklore genres; history and theory of folklore.

ENGL 262 The Hebrew Bible: Narrative (3) Also offered as JWST262. Not open to students who have completed HEBR223. Credit will be granted for only one of the following: ENGL262 or JWST262. Formerly HEBR223. Selected readings from narrative sections of the Hebrew Bible stressing the new literary approaches to the biblical text. In English; no knowledge of Hebrew required.

ENGL 263 The Hebrew Bible: Poetry and Prophecy (3) Also offered as JWST263. Not open to students who have completed HEBR224. Credit will be granted for only one of the following: ENGL263 or JWST263. Formerly HEBR224. Readings of poetic and prophetic selections from the Hebrew Bible. Analysis of devices and their rhetorical effort. Comparison of biblical poetry with other poetry of the ancient near East. In English; no knowledge of Hebrew required.

ENGL 265 Introduction to Lesbian, Gay, and Bisexual Literature (3) Also offered as LGBT265. Not open to students who have completed LGBT265. Credit will be granted for only one of the following: ENGL265 or LGBT265. A study of the pervasiveness of homoeroticism in literature from the Renaissance to the present. Emphasis on recurrent themes and motifs and the struggle to find voice within a context of stigma, suppression, and silence. Writers might include Shakespeare, Walt Whitman, Emily Dickinson, Oscar Wilde, Willa Cather, James Baldwin, Audre Lorde, Adrienne Rich.

ENGL 277 Mythologies: An Introduction (3) Introduction to the myths of Europe, Asia, Oceania, the Middle East, Africa and North and South America.

ENGL 278 Special Topics in Literature (3) Repeatable to 9 credits if content differs.

ENGL 280 Introduction to the English Language (3) Facts and phenomena of the English language; basic concepts and instruments useful for the analysis of literary and rhetorical uses of English. Potential topics include the history of English, its metrics, lexical patterns, common rhetorical devices, literary genres and its role as an international language.

ENGL 281 Standard English Grammar, Usage, and Diction (3) The basic structure of written English, including parts of speech, sentence patterns, standard punctuation, diction, and usage.

ENGL 282 Introduction to Rhetorical Theory (3) Basic elements of rhetorical theory. Classical and contemporary perspectives on the nature, functions, and scope of rhetoric. Potential texts for analysis include non-fiction prose, novels, short fiction, philosophical treatises, autobiographies, biographies, and speeches.

ENGL 291 Intermediate Writing (3) Writing essays, the revision process, and editing techniques.

ENGL 294 Introduction to Creative Writing (3) Writing of fiction and poetry, with special attention to elements of style and craft. Selected readings, frequent writing exercises, workshop format.

ENGL 296 Beginning Fiction Workshop (3) Writing of fiction, with special attention to the elements of style and craft. Selected readings, frequent writing exercises, workshop format.

ENGL 297 Beginning Poetry Workshop (3) Writing of poetry, with special attention to the elements of style and craft. Selected readings, frequent writing exercises, workshop format.

ENGL 301 Critical Methods in the Study of Literature (3) For English or English Education Majors, or English Minors. An introduction to the techniques of literary analysis and a brief survey of the most common approaches to literature.

ENGL 302 Medieval Literature in Translation (3) Prerequisite: two lower-level English courses, at least one in literature; or permission of department. Surveys major works of English and continental Middle Ages. Readings may include romance, lyric and drama, Germanic epic, works of Dante, Chretien de Troyes, Jean de Meun, Christine de Pisan, Malory, English and continental mystics.

ENGL 304 The Major Works of Shakespeare (3) Prerequisite: two lower-level English courses, at least one in literature; or permission of department. Not open to students who have completed ENGL403 and ENGL404.

Representative early, middle, and later works, including comedies, tragedies, histories, and romances. Historical and cultural contexts.

ENGL 305 Shakespeare and His Contemporaries: An Introduction (3) Prerequisite: two lower-level English courses, at least one in literature; or permission of department. Readings in Shakespeare and contemporaries such as Marlowe, Dekker, Middleton, Jonson, Webster, Chapman, Marston. Elizabethan and Jacobean theatrical and social contexts.

ENGL 310 Medieval and Renaissance British Literature (3) Prerequisite: two lower-level English courses, at least one in literature; or permission of department. Detailed study of selected major medieval and Renaissance works written in England. Cultural attitudes and historical contexts. May include Beowulf, Anglo-Saxon lyric, drama, sonnets; works of women writers, Chaucer, Spenser, Sidney. Some readings in Middle English.

ENGL 311 British Literature from 1600 to 1800 (3) Prerequisite: two lower-level English courses, at least one in literature; or permission of department. The culture of seventeenth and eighteenth-century Britain seen through detailed study of selected major texts. Drama, poetry, political writings, and early novels by men and women. Authors may include Donne, Milton, Jonson, Behn, Swift, Pope, Montagu, and Wollstonecraft.

ENGL 312 Romantic to Modern British Literature (3) Prerequisite: two lower-level English courses, at least one in literature; or permission of department. Detailed study of selected major texts from the 19th and 20th centuries. Transitions from Romanticism to Victorian age to Modernism. Historical, social, literary contexts. Issues such as rise of democracy; industrial revolution; the "woman question"; revolutions in literary form. Authors might include Wordsworth, Austen, Dickens, Arnold, T.S. Eliot, Woolf.

ENGL 313 American Literature (3) Prerequisite: two lower-level English courses, at least one in literature; or permission of department. A detailed study of selected major texts of American literature from the 17th century to the 20th century. Issues such as race, gender, and regionalism. Authors such as Franklin, Hawthorne, Dickinson, Hemingway, and Morrison.

ENGL 339 Native American Literature (3) Prerequisite: Two lower level English classes, at least one in literature; or permission of department. Repeatable to 9 credits if content differs. Study of selected writers or particular themes or genres in Native American literatures.

ENGL 344 Nineteenth-Century Fiction (3) Prerequisite: two lower-level English courses, at least one in literature; or permission of department. Not open to students who have completed ENGL379A in Fall 2005 or Spring 2006. Major British, American, and other fiction writers of the nineteenth century studied in the context of the broad global, intellectual, and artistic interests of the century.

ENGL 345 Twentieth Century Poetry (3) Prerequisite: two lower-level English courses, at least one in literature; or permission of department. Not open to students who have completed ENGL445 or ENGL446. Major British and American poets of the twentieth century.

ENGL 346 Twentieth Century Fiction (3) Prerequisite: two lower-level English courses, at least one in literature; or permission of department. Not open to students who have completed ENGL379B in Spring 2006. Major British, American, and other fiction writers of the twentieth century studied in the context of the broad global, intellectual, and artistic interests of the century.

ENGL 348 Literary Works by Women (3) Prerequisite: two lower-level English courses, at least one in literature; or permission of department. Repeatable to 6 credits if content differs. Also offered as WMST348. Credit will be granted for only one of the following: ENGL348 or WMST348. The context, form, style and meaning of literary works by women.

ENGL 349 Asian American Literatures (3) Prerequisite: Two lower level English classes, at least one in literature; or permission of department. Repeatable to 9 credits if content differs. Study of selected writers, particular themes, or genres in Asian American literatures.

ENGL 359 Special Topics in Lesbian, Gay, and Bisexual Literatures (3) Prerequisites: Two lower-level English courses, at least one in literature; or permission of department. Repeatable to 9 credits if content differs. Study of selected writers or particular themes in Lesbian, Gay, and Bisexual Literatures.

ENGL 360 African, Indian and Caribbean Writers (3) Prerequisite: two lower-level English courses, at least one in literature; or permission of department. Selected writers from countries formerly colonies of Britain, France, Denmark, etc. Attention to ways regions have developed distinctive political and aesthetic values resulting from indigenous traditions and foreign influences.

ENGL 362 Caribbean Literature in English (3) Prerequisite: two lower-level English courses, at least one in literature; or permission of department. Political and literary traditions that intersect in the fiction, poetry, and drama written in English by Caribbean writers, primarily during the 20th century.

ENGL 368 Special Topics in the Literature of Africa and the African Diaspora (3) Prerequisite: two lower-level courses, at least one in literature; or permission of department. Repeatable to 9 credits if content differs. Comparisons among the literary traditions in Africa, the Caribbean, and North and South America.

ENGL 370 Junior Honors Conference (1) Prerequisite: candidacy for honors in English. Preparation for writing the senior honors project.

ENGL 373 Senior Honors Project (2) Prerequisite: ENGL370. For ENGL majors only. Research and writing of senior honors project. Strongly recommended for students planning graduate work.

ENGL 377 Medieval Myth and Modern Narrative (3) Prerequisite: two lower-level English courses, at least one in literature; or permission of department. Not open to students who have completed ENGL361. Formerly ENGL361. Literary patterns characteristic of medieval myth, epic, and romance; their continuing vitality in modern works; and links between Medieval works like "The Prose Edda", "Beowulf", "The Morte D'Arthur", "The Volsunga Saga", and "Grettis Saga" and modern narratives like Tolkien's "The Lord of the Rings".

ENGL 379 Special Topics in Literature (3) Prerequisite: two lower-level English courses, at least one in literature; or permission of department. Repeatable to 9 credits if content differs.

ENGL 381 MGA Legislative Seminar (3) Prerequisite: permission of department. Classroom analysis component of the Maryland General Assembly internship program.

ENGL 383 The Uses of Language (3) Exploration of the social and political aspects of language use, including conversational behavior, persuasive uses of language, social dialects, and language and gender; analytical methods of pragmatics and discourse analysis.

ENGL 384 Concepts of Grammar (3) Introduction to the basic units of grammatical description; motivation for and nature of constituent structure and syntactic categories; fundamental grammatical concepts employed in the teaching and learning of languages.

ENGL 385 English Semantics (3) An introductory study of meaning in language and paralanguage. General semantics, kinesics, linguistic relativity and recent developments in linguistic semantics.

ENGL 386 Experiential Learning (3-6) Prerequisite: Learning Proposal approved by the Office of Experiential Learning Programs, faculty sponsor, and student's internship sponsor. Junior standing.

ENGL 388 Writing Internship (1-6) Prerequisite: permission of department. Repeatable to 9 credits. Credit will be granted for only one of the following: ENGL380 or ENGL388. Formerly ENGL380. Field work in English.

ENGL 390 Science Writing (3) Prerequisite: 60 credits and completion of ENGL101 or equivalent. This course satisfies the professional writing requirement. Junior standing. Not open to students who have completed ENGL393S. Credit will be granted for only one of the following: ENGL390 or ENGL393S. Formerly ENGL393S. Specifically designed for students interested in further study in the physical and biological sciences. Exposes students to the conventions of scientific prose in the genres of research articles and proposals. Students learn to accommodate scientific information to general audiences. Satisfies professional writing requirement.

ENGL 391 Advanced Composition (3) Prerequisite: 60 credits and completion of ENGL101 or equivalent. This course satisfies the professional writing requirement. An advanced composition course which emphasizes constructing written arguments accommodated to real audiences.

ENGL 392 Legal Writing (3) Prerequisite: 60 credits and completion of ENGL101 or equivalent. This course satisfies the professional writing requirement. Conventions of legal writing and research. Students learn how to read and write about cases, statutes or other legislation; how to apply legal principles to fact scenarios; and how to present a written analysis for readers in the legal profession. Assignments may include the law-school application essay, case briefs, legal memos, and client letters. Satisfies professional writing requirement.

ENGL 393 Technical Writing (3) Prerequisite: 60 credits and completion of ENGL101 or equivalent. This course satisfies the professional writing requirement. The writing of technical papers and reports.

ENGL 394 Business Writing (3) Prerequisite: 60 credits and completion of ENGL101 or equivalent. This course satisfies the professional writing requirement. Intensive practice in the forms of written communication common in the business world-letters, memos, short reports, and proposals. Principles of rhetoric and effective style.

ENGL 395 Writing for Health Professions (3) Prerequisite: 60 credits and completion of ENGL101 or equivalent. This course satisfies the professional writing requirement. Focus on accommodating technical material and empirical studies to lay audiences, and helping writers to achieve stylistic flexibility and correctness.

ENGL 396 Intermediate Fiction Workshop (3) Prerequisite: permission of department. Practice in the craft of writing fiction, with special attention to the revision process. Selected readings, frequent writing exercises, workshop format.

ENGL 397 Intermediate Poetry Workshop (3) Prerequisite: permission of department. Practice in the craft of writing poetry, with special attention to the revision process. Selected readings, frequent writing exercises, workshop format.

ENGL 398 Topics in Professional Writing (3) Prerequisite: 60 credits and completion of ENGL101 or equivalent. This course satisfies the professional writing requirement. Junior standing. Repeatable to 6 credits if content differs. Professional writing courses that focus on the audiences, conventions, and genres of particular disciplines, professions, or organizations. Examples include writing for the arts, writing case studies and investigative reports, writing about economics, and writing for non-profit organizations.

ENGL 399 Senior Seminar (3) Limited to graduating English majors, to be taken in the last year of the undergraduate program, normally following completion of the core courses. Topics will vary each semester; most will be interdisciplinary or will cross historical periods. The course will provide a seminar experience in material or methodologies not otherwise available to the major.

ENGL 402 Chaucer (3) Prerequisite: two English courses in literature or permission of department. Works read in Middle English. Readings may include Canterbury Tales, Troilus and Criseyde, dream visions, lyrics.

ENGL 403 Shakespeare: The Early Works (3) Prerequisite: two English courses in literature or permission of department. Close study of selected works from the first half of Shakespeare's career. Generic issues of early histories, comedies, tragedies. Language, theme, dramatic technique, sources, and early modern English social-historical context.

ENGL 404 Shakespeare: The Later Works (3) Prerequisite: two English courses in literature or permission of department. Close study of selected plays from the second half of Shakespeare's career. Generic issues of later tragedies, later comedies, romances. Language, theme, dramatic technique, sources, and early modern English social-historical context.

ENGL 407 Non-dramatic Literature of the Sixteenth Century (3) Prerequisite: two English courses in literature or permission of department. Poetic and prose genres--utopia, epic, narrative, lyric, sonnet, oration, epistle, sermon, apologia--in context of the literary and intellectual life of the sixteenth century. Writers such as More, Wyatt, Surrey, Sidney, and Spenser.

ENGL 408 Literature by Women Before 1800 (3) Prerequisite: two English courses in literature or permission of department. Repeatable to 9 credits if content differs. Also offered as WMST408. Credit will be granted for only one of the following: ENGL408 or WMST408. Selected writings by women in the medieval and early modern era.

ENGL 410 Edmund Spenser (3) Prerequisite: two English courses in literature or permission of department. Selected works of Edmund Spenser in their literary, social, and historical contexts. Special attention to The Faerie Queene; also sonnets and lyric poetry.

ENGL 412 Literature of the Seventeenth Century, 1600-1660 (3) Prerequisite: two English courses in literature or permission of department. Works from early Stuart through Interregnum period. Major literary genres in historical contexts. Writers such as Donne, Jonson, Mary Wroth, Bacon, Browne, and Marvell.

ENGL 414 Milton (3) Prerequisite: two English courses in literature or permission of department. Poetry and major prose in their social, political, and literary-historical contexts. Special attention to Paradise Lost. Other works may include Samson Agonistes and shorter poems.

ENGL 415 Literature of the Seventeenth Century, 1660-1700 (3) Prerequisite: two English courses in literature or permission of department. English poetry, drama, fiction, and non-fiction written from the Restoration of Charles II to 1700. Attention to increasing literacy and publication and greater involvement by women in literary production. Authors include Milton, Dryden, Congreve, and Behn.

ENGL 416 Literature of the Eighteenth Century, 1700-1750 (3) Prerequisite: two English courses in literature or permission of department. British literary traditions, including the poetry of Pope, the prose of Swift, the correspondence of Montagu, the drama of Gay, and early novels by Defoe, Richardson, and Fielding.

ENGL 417 Literature of the Eighteenth Century, 1750-1800 (3) Prerequisite: two English courses in literature or permission of department. British poetry, drama, fiction, and nonfiction, emphasizing innovative forms and attitudes in genres such as the gothic novel and political writings, as well as more traditional works. Authors include Johnson, Burney, Sterne, Burke, and Wollstonecraft.

ENGL 418 Major British Writers before 1800 (3) Prerequisite: two English courses in literature or permission of department. Repeatable to 9 credits if content differs. Two writers studied intensively each semester.

ENGL 419 Major British Writers after 1800 (3) Prerequisite: two English courses in literature or permission of department. Repeatable to 9 credits if content differs. Two writers studied intensively each semester.

ENGL 420 English Romantic Literature (3) Prerequisite: two lower level English courses, at least one in literature; or permission of department. British poetry, drama, fiction, and criticism c.1790 to c.1830, a period of dramatic social change and revolution in literature, philosophy, the arts, industry, and politics. Authors include Austen, Wordsworth, Coleridge, Keats, Byron, Percy, and Mary Shelley.

ENGL 422 English Victorian Literature (3) Prerequisite: two lower level English courses, at least one in literature; or permission of department. A survey of English literature of the Victorian period. Writers may include Arnold, Browning, Tennyson, Dickens, George Eliot, Carlyle, Ruskin, Newman, Wilde.

ENGL 425 Modern British Literature (3) Prerequisite: two English courses in literature or permission of department. Major Modernist writers in English prose and poetry since 1900. Such writers as Eliot, Larkin, Forster, Burgess, Durrell, Henry Green, Golding, Auden, Malcolm Lowry, Joyce, and Yeats.

ENGL 428 Seminar in Language and Literature (3) Junior standing. For ENGL majors only. Repeatable to 9 credits if content differs. Topics will vary each semester. The course will provide a seminar experience in material or methodologies not otherwise available to the major.

ENGL 429 Independent Research in English (1-6) Prerequisite: ENGL301 and two English course (excluding fundamental studies requirement) and permission of department. Sophomore standing. Repeatable to 9 credits if content differs. An advanced independent research project for qualified students, supervised by an English faculty member, on a topic not ordinarily covered in available courses.

ENGL 430 American Literature, Beginning to 1810, the Colonial and Federal (3) Periods Prerequisite: two English courses in literature or permission of department. Puritanism, the Enlightenment, early Romanticism. Writers such as Bradstreet, Franklin, Brown.

ENGL 431 American Literature: 1810 to 1865, the American Renaissance (3) Prerequisite: two English courses in literature or permission of department. Nationalism, Sentimentalism, Transcendentalism. Writers such as Douglass, Stowe, Melville.

ENGL 432 American Literature: 1865 to 1914, Realism and Naturalism (3) Prerequisite: two English courses in literature or permission of department. Reconstruction, Realism, Naturalism. Representative writers such as Dickinson, James, Dreiser.

ENGL 433 American Literature: 1914 to the Present, the Modern Period (3) Prerequisite: two English courses in literature or permission of department. Modernism, Postmodernism. Writers such as Stevens, Stein, Ellison.

ENGL 434 American Drama (3) Prerequisite: two English courses in literature or permission of department. American drama from late eighteenth-century to the present; emphasis on theater of the twentieth century. Authors such as Tyler, O'Neill, Hellman, Hansberry, and Albee.

ENGL 435 American Poetry: Beginning to the Present (3) Prerequisite: two English courses in literature or permission of department. Selections of American poetry, from Bradstreet to contemporary free verse. Authors such as

Whitman, Dickinson, Bishop, Hughes, Rich, and Frost.

ENGL 437 Contemporary American Literature (3) Prerequisite: two English courses in literature or permission of department. Prose, poetry, drama of living American writers. Current cultural and social issues.

ENGL 438 Major American Writers before 1865 (3) Prerequisite: two English courses in literature of permission of department. Repeatable to 9 credits if content differs. Two writers studied intensively each semester.

ENGL 439 Major American Writers after 1865 (3) Prerequisite: two English courses in literature or permission of department. Repeatable to 9 credits if content differs. Two writers studied intensively each semester.

ENGL 440 The Novel in America to 1914 (3) Prerequisite: two English courses in literature or permission of department. Survey of the American novel to World War I. Cultural and philosophical contexts; technical developments in the genre. Authors such as Melville, Wells Brown, James, Sedgwick, Chopin.

ENGL 441 The Novel in America Since 1914 (3) Prerequisite: two English courses in literature or permission of department. Survey of the American novel since World War I. Cultural and philosophical contexts, technical developments in the genre. Authors such as Hemingway, Cather, Faulkner, Anne Tyler, Morrison.

ENGL 442 Literature of the South (3) Prerequisite: two English courses in literature or permission of department. Survey of fiction and poetry, especially the period 1900 to the present. Authors such as Faulkner, Welty, Glasgow, Wolfe, and Hurston.

ENGL 443 Afro-American Literature (3) Prerequisite: two English courses in literature or permission of department. An examination of the literary expression of the black American in the United States, from its beginning to the present.

ENGL 444 Feminist Critical Theory (3) Prerequisite: ENGL250 or WMST200 or WMST250. Also offered as WMST444. Credit will be granted for only one of the following: ENGL444 or WMST444. Issues in contemporary feminist thought that have particular relevance to textual studies, such as theories of language, literature, culture, interpretation, and identity.

ENGL 445 Modern British and American Poetry (3) Prerequisite: two English courses in literature or permission of department. The formation of Modernism in British and American poetry before 1930. Such poets as Yeats, Pound, H.D., Eliot, Langston Hughes, Moore, Stevens, and Williams.

ENGL 446 Post-Modern British and American Poetry (3) Prerequisite: two English courses in literature or permission of department. British and American poets from the 1930s to the present. Such poets as Auden, Williams, Plath, Brooks, Lowell, Wolcott, Ted Hughes, Bishop, Larkin, Jarrell, and Berryman.

ENGL 447 Satire (3) Prerequisite: two English courses in literature or permission of department. An introduction to English and American satire from Chaucer to the present.

ENGL 448 Literature by Women of Color (3) Prerequisite: two English courses in literature or permission of department. Repeatable to 9 credits if content differs. Also offered as WMST448. Credit will be granted for only one of the following: ENGL448 or WMST448. Literature by women of color in the United States, Britain, and in colonial and post-colonial countries.

ENGL 449 Playwriting (3) Practice in writing one-act plays. Script development, production choices.

ENGL 450 Renaissance Drama I (3) Prerequisite: two English courses in literature or permission of department. Drama of the sixteenth century, from Sir Thomas More's circle through Lyly, Greene, Marlowe, and their successors. Interludes, school drama, comedy and tragedy, professional theater. Influences of humanism, Protestantism, politics, and cultural change.

ENGL 451 Renaissance Drama II (3) Prerequisite: two English courses in literature or permission of department. Drama in early decades of the seventeenth century. Playwrights include Jonson, Middleton, Marston, Webster, Beaumont and Fletcher. Tragedy, city comedy, tragicomedy, satire, masque. Pre-Civil War theatrical, political, and religious contexts.

ENGL 452 English Drama From 1660 to 1800 (3) Prerequisite: two English courses in literature or permission of department. Restoration and eighteenth-century drama, with special attention to theater history, cultural influences, concepts of tragedy, comedy, farce, parody, and burlesque, as well as dramatic and verbal wit.

ENGL 453 Literary Theory (3) Prerequisite: two literature courses. An in-depth study of literary and critical theory.

ENGL 454 Modern Drama (3) Prerequisite: two English courses in literature or permission of department. The roots of European Modernism and its manifestation in the drama of the twentieth century. Such playwrights as Beckett, Churchill, Stoppard, Wilde, Chekhov, Ibsen, Brecht, O'Neill, Sartre, Anouilh, Williams, and Shaw.

ENGL 455 The Eighteenth-Century English Novel (3) Prerequisite: two English courses in literature or permission of department. The origins and development of the British novel, from the late seventeenth century until the beginning of the nineteenth. Questions about what novels were, who wrote them, and who read them. Authors such as Behn, Defoe, Richardson, Fielding, Sterne, Smollett, Burney, Radcliffe, and Austen.

ENGL 456 The Nineteenth-Century English Novel (3) Prerequisite: two English courses in literature or permission of department. Surveys major novels of the period. Attention to narrative form and realism; representations of gender and class; social contexts for reading, writing and publishing. Authors such as Austen, Bronte, Dickens, George Eliot, Trollope.

ENGL 457 The Modern Novel (3) Prerequisite: two English courses in literature or permission of department. Modernism in the novel of the twentieth century. Such writers as Joyce, Lawrence, Murdoch, James, Forster, Faulkner, Hemingway, Fitzgerald, Ellison, Welty, Nabokov and Malamud.

ENGL 458 Literature by Women after 1800 (3) Prerequisite: two English courses in literature or permission of department. Repeatable to 9 credits if content differs. Also offered as WMST458. Credit will be granted for only one of the following: ENGL458 or WMST458. Selected writings by women after l800.

ENGL 459 Selected Topics in Sexuality and Literature (3) Prerequisite: Two lower-level English courses, at least one in literature; or permission of department. Repeatable to 9 credits if content differs. Detailed study of sexuality as an aspect of literary and cultural expression.

ENGL 461 Folk Narrative (3) Personal history narrative; studies in legend, tale and myth.

ENGL 462 Folksong and Ballad (3) A cross-section of American folk and popular songs in their cultural contexts; artists from Bill Monroe to Robert Johnson.

ENGL 463 American Folklore (3) An examination of American folklore in terms of history and regional folk cultures. Exploration of collections of folklore from various areas to reveal the difference in regional and ethnic groups as witnessed in their oral and literary traditions.

ENGL 464 African-American Folklore and Culture (3) The culture of African Americans in terms of United States history (antebellum to the present) and social changes (rural to urban). Exploration of aspects of African-American culture and history via oral and literary traditions and life histories.

ENGL 465 Theories of Sexuality and Literature (3) Prerequisite: Two lower-level English courses, at least one in literature; or permission of department. An in-depth study of the ways in which sexuality and sexual difference create or confound the conditions of meaning in the production of literary texts. Attention to psychoanalysis, history of sexuality, feminist theory, and other accounts of sexual identity.

ENGL 466 Arthurian Legend (3) Prerequisite: two English courses in literature or permission of department. Development of Arthurian legend in English and continental literature from Middle Ages to twentieth century. All readings in modern English.

ENGL 467 Computer and Text (3) Prerequisite: One English course in literature or permission of department. Examines electronic literature and other aspects of digital textuality. Topics may include interactive fiction, hypertext, image and sound works, literary games and simulations. Emphasis on critical and theoretical approaches rather than design or programming.

ENGL 468 American Film Directors (3-9) Prerequisite: one college-level film course. Repeatable to 9 credits if content differs. A study of two or more American filmmakers in an analytic cultural context.

ENGL 469 Honors Seminar: Alternative Traditions (4-5) Prerequisite: permission of Director of English Honors. Repeatable to 9 credits if content differs. Yearlong seminar focusing on a selected literary, cultural, or social topic that features texts and/or critical perspectives outside the traditional canon.

ENGL 470 African-American Literature: The Beginning to 1910 (3) Prerequisite: two English courses in literature or permission of department. Beginnings of African-American literature including origins of literary expression in folk tales, songs, and spirituals; slave narratives; pamphlets, essays and oratory; and the emergence of poetry and fiction. Emphasis is on interaction between literary forms and the salient political issues of the day.

ENGL 471 African-American Literature: 1910-1945 (3) Prerequisite: two English courses in literature or permission of department. Emergence of modernism in African-American writing including debates over the definition of unique African-American aesthetics, with emphasis on conditions surrounding the production of African-American literatures.

ENGL 472 African-American Literature: 1945 to Present (3) Prerequisite: two English courses in literature or permission of department. Transformation of African-American literatures into modern and postmodern forms. Influenced by World War II and the Civil Rights and Black Power movements, this literature is characterized by conscious attempts to reconnect literary and folk forms, the emergence of women writers, and highly experimental fiction.

ENGL 475 Postmodern Literature (3) Prerequisite: two lower level English classes, one in literature. Sophomore standing. The origins and ongoing development of postmodern literature. Aspects of the "postmodern condition," such as the collapse of identity, the erasure of cultural and aesthetic boundaries, and the dissolution of life into textuality. The novel and other genres and media.

ENGL 477 Studies in Mythmaking (3) Prerequisite: two literature courses. Major themes, figures, and configurations of northern European mythology, examining the value of the mythic mode of thought in a scientific era.

ENGL 478 Selected Topics in English and American Literature before 1800 (1-3) Prerequisite: two English courses in literature or permission of department. Repeatable if content differs.

ENGL 479 Selected Topics in English and American Literature after 1800 (3) Prerequisite: two English courses in literature or permission of department. Repeatable if content differs.

ENGL 482 History of the English Language (3) Prerequisite: ENGL280 or LING200 or permission of department. Origin and development of the English language.

ENGL 483 American English (3) Prerequisite: ENGL280 or LING200 or permission of department. Origins and development of the various dialects of English spoken in the United States.

ENGL 484 Advanced English Grammar (3) Credit will be granted for only one of the following: ENGL484 or LING402. Advanced study of grammatical description.

ENGL 486 Introduction to Old English (3) Prerequisite: two English courses in literature or permission of department. Grammar, syntax, and phonology of Old English. Works read in the original language. Poetry may include "Battle of Maldon," "Dream of the Rood," "Wanderer," "Seafarer," riddles; prose of Bede, Wulfstan, Aelfric, and other writers of Anglo-Saxon period in England.

ENGL 487 Foundations of Rhetoric (3) Credit will be granted for only one of the following: ENGL487 or COMM401. Principles and approaches to the theory, criticism, and historical understanding of rhetorical discourse.

ENGL 488 Topics in Advanced Writing (3) Repeatable to 9 credits if content differs. Different genres of technical and professional writing including proposal writing, computer documentation, technical report writing, instruction manuals, etc. Students will analyze models of a genre, produce their own versions, test, edit and revise them.

ENGL 489 Special Topics in English Language (3) Repeatable to 9 credits if content differs. Current topics in language, such as linguistics, history of rhetoric, and composition studies.

ENGL 493 Advanced Expository Writing (3) Prerequisite: satisfactory completion of professional writing requirement. Writing processes and documents most necessary for professional writers.

ENGL 494 Editing and Document Design (3) Prerequisite: ENGL391, ENGL393 or equivalent. Principles of general editing for clarity, precision and correctness. Applications of the conventions of grammar, spelling, punctuation and usage, and organization for logic and accuracy. Working knowledge of the professional vocabulary of editing applied throughout the course.

ENGL 495 Independent Study in Honors (1-3) Prerequisites: Candidacy for honors in English and ENGL370 and ENGL373. For ENGL majors only. Completion and presentation of the senior honors project.

ENGL 498 Advanced Fiction Workshop (3) Prerequisite: ENGL396 or permission of department. Repeatable to 9 credits if content differs. Formerly ENGL496. Practice in the craft of writing fiction, with emphasis on the revision process. Students encouraged to experiment with a variety of subjects, voices, and forms. Selected readings, frequent writing exercises, workshop format.

ENGL 499 Advanced Poetry Workshop (3) Prerequisite: ENGL397 or permission of department. Repeatable to 9 credits if content differs. Formerly ENGL497. Practice in the craft of writing poetry, with emphasis on the revision process. Students encouraged to experiment with a variety of subjects, forms, and literary conventions. Selected readings, frequent writing exercises, workshop format.

ENMA -- Engineering, Materials

ENMA 150 Materials of Civilization (3) The discovery of new materials has shaped history and built civilizations. The utilization, properties and production techniques of materials from the Bronze Age up through modern times and into the future will be traced. These materials are explained by considering their atomic structure, the binding forces between atoms and their arrangement, and how controlling the structure controls the materials properties.

ENMA 181 Introduction to Nanotechnology (1) Freshman standing. Seminar introducing nanotechnology and the conceptual and analytical challenges for developing future nanomaterials. Class activities and guest lectures cover the role of nanomaterials in materials science and engineering.

ENMA 300 Introduction to Materials and their Applications (3) Prerequisite: ENES100 or permission of department. Corequisite: MATH241. Recommended: PHYS260 and PHYS261. Not open to students who have completed ENES230. Credit will be granted for only one of the following: ENES230 or ENMA300. Structure of materials, chemical composition, phase transformations, corrosion and mechanical properties of metals, ceramics, polymers and related materials. Materials selection in engineering applications.

ENMA 310 Materials Laboratory I: Structural Characterization (3) One hour of lecture and six hours of laboratory per week. Prerequisite: ENMA300. Corequisite: ENMA460. Junior standing. Characterization of the structure of materials including both single crystal and polycrystalline materials. Laboratories will include x-ray and electron diffraction and microscopy.

ENMA 311 Materials Laboratory II: Electromagnetic Properties (3) One hour of lecture and six hours of laboratory per week. Prerequisites: ENMA310 and ENMA460. Junior standing. Characterization of the electromagnetic properties of materials. Laboratories will include measurements of electrical and transport properties, index of refraction, and magnetic properties.

ENMA 362 Mechanical Properties (4) Prerequisite: ENMA300. Junior standing or permission of department. Fundamentals of mechanical behavior in materials. Elastic behavior, dislocations, strengthening, high temperature deformation, deformation of noncrystalline materials, tensile fracture and fatigue.

ENMA 386 Experiential Learning (3-6) Prerequisite: Learning Proposal approved by the Office of Experiential Learning Programs, faculty sponsor, and student's internship sponsor. Junior standing.

ENMA 420 Intermediate Ceramics (3) Prerequisites: ENMA300, ENMA470, and ENMA471 or permission of department. To introduce basic concepts such as crystal chemistry, defect chemistry and ternary phase equilibria which can also be used to illustrate the various types of advanced ceramics (superconductors; superionic conductors; dielectrics including ferroelectrics; optical materials; high temperature structural materials; etc.) and allow an understanding of their behaviors.

ENMA 421 Design of Composites (3) Prerequisite: permission of department. Credit will be granted for only one of the following: ENMA421 or ENMA489A. Formerly ENMA489A. Fundamentals of design, processing and selection composite materials for structural applications will be covered. The topics include a review of all classes of materials, an in-depth analysis of micro and macro mechanical behavior including interactions at the two-phase interfaces, modeling of composite morphologies for optimal microstructures, material aspects, cost considerations, processing methods including consideration of chemical reactions and stability of the interfaces, and materials selection considerations.

ENMA 422 Radiation Effects of Materials (3) Prerequisite: ENNU215, ENNU310, or ENMA300; or permission of department. Credit will be granted for only one of the following: ENMA422 or ENMA489E. Formerly ENMA489E.

Ionizing radiation, radiation dosimetry and sensors, radiation processing, radiation effects on: polymers, metals, semiconductors, liquids, and gases. Radiation in advanced manufacturing, radiation-physical technology.

ENMA 423 Manufacturing with Polymers (3) Prerequisite: ENMA300 or permission of department. Credit will be granted for only one of the following: ENMA423 and ENMA489R. Formerly ENMA489R. Study of the process of engineering design and development of polymer formulations. Knowledge of commodity polymers and their physical properties, ability to design an extrusion process, develop the economics of a polymer manufacturing process, develop a working knowledge of characterization techniques for determination of physical and mechanical properties of polymers.

ENMA 425 Introduction to Biomaterials (3) Prerequisite: permission of department. Recommended: ENMA300. Credit will be granted for only one of the following: ENMA489W or ENMA425. Formerly ENMA489W. Examination of materials used in humans and other biological systems in terms of the relationships between structure, fundamental properties and functional behavior. Replacement materials such as implants, assistive devices such as insulin pumps and pacemakers, drug delivery systems, biosensors, engineered materials such as artificial skin and bone growth scaffolds, and biocompatibility will be covered.

ENMA 440 Nano Plasma Processing of Materials (3) Prerequisite: permission of department. Credit will be granted for only one of the following: ENMA440, ENMA489P, ENMA640, or ENMA698P. Formerly ENMA489P. Sustaining mechanisms of plasmas are covered, especially low-pressure electrical gas discharges, fundamental plasma physics, sheath formation, electric and magnetic field effects, plasma-surface interactions in chemically reactive systems, plasma diagnostic techniques and selected industrial applications of low pressure plasmas.

ENMA 441 Nanotechnology Characterization (3) Prerequisite: permission of department. Senior standing. Credit will be granted for only one of the following: ENMA489T or ENMA441. Formerly ENMA489T. Techniques to characterize structure, forces, composition and transport at the nanoscale are covered. Underlying principles, instrumentation, capabilities and limitations are discussed for scanning tunneling microscopy and spectroscopy, force microscopies, electron optical microscopies and scattering techniques. Examples from the recent literature are discussed through in-class presentations and guest lectures.

ENMA 442 Nanomaterials (3) Prerequisite: permission of department. Credit will be granted for only one of the following: ENMA442 or ENMA489N. Formerly ENMA489N. An exploration of materials whose structure places them at the boundary between small objects and large molecules. Having characteristic dimensions in the range of 1-100 nanometers, these materials are difficult to synthesize and characterize but are nevertheless at the forefront of science and technology in many fields. Also, the methods for creating, manipulating and measuring these materials with an emphasis on the current scientific literature will be covered. The novel properties and potential applications will also be addressed.

ENMA 443 Phontonic Materials, Devices and Reliability (3) Prerequisite: permission of department. Junior standing. Credit will be granted for only one of the following: ENMA443 or ENMA489Z. Formerly ENMA489Z. The course focuses on the understanding of the basic optical processes in semiconductors, dielectrics and organic materials. The application of such materials in systems composed of waveguides, light emitting diodes and lasers, as well as modulators is developed.

ENMA 460 Physics of Solid Materials (3) Prerequisites: MATH241 and (PHYS270 and 271 {Formerly PHYS263}). Junior standing. For ENMA majors only. Also offered as PHYS431. Credit will be granted for only one of the following: ENMA460 or PHYS431. Classes of materials; introduction to basic ideal and real materials' behavior including mechanical, electrical, thermal, magnetic and optical responses of materials; importance of microstructure in behavior. One application of each property will be discussed in detail.

ENMA 461 Thermodynamics of Materials (3) Prerequisite: ENMA300. Junior standing. Thermodynamic aspects of materials; basic concepts and their application in design and processing of materials and systems. Topics include: energy, entropy, adiabatic and isothermal processes, internal and free energy, heat capacity, phase equilibria and surfaces and interfaces.

ENMA 462 Smart Materials (3) Prerequisite: permission of department. Credit will be granted for only one of the following: ENMA462 or ENMA489B. Formerly ENMA489B. A fundamental understanding will be provided as it relates to the following topics: ferroic materials, ferromagnets, ferroelectric materials, shape memory alloys and multiferroic materials that are simultaneously ferromagnetic and ferroelectric. The ferroic properties will be discussed on an atomic, nano- and micro-scales so that actual and potential applications on those scales become clear. Examples of those applications will be presented.

ENMA 463 Macroprocessing of Materials (3) Prerequisite: ENMA300. Junior standing. Processing of modern, bulk engineering materials. Raw materials, forming, firing, finishing and joining. More emphasis on metals and ceramics than polymers.

ENMA 464 Environmental Effects on Engineering Materials (3) Prerequisite: ENMA300 or permission of both department and instructor. Introduction to the phenomena associated with the resistance of materials to damage under severe environmental conditions. Oxidation, corrosion, stress corrosion, corrosion fatigue and radiation damage are examined from the point of view of mechanism and influence on the properties of materials. Methods of corrosion protection and criteria for selection of materials for use in radiation environments.

ENMA 465 Microprocessing Materials (3) Prerequisite: ENMA300. Also offered as ENMA489B. Credit will be granted for only one of the following: ENMA363, ENMA489B, or ENMA465. Formerly ENMA363. Micro and nanoscale processing of materials. Emphasis on thin film processing for advanced technologies.

ENMA 471 Kinetics, Diffusion and Phase Transformations (3) Pre- or corequisite: ENMA461. Junior standing or permission of department. Fundamentals of diffusion, the kinetics of reactions including nucleation and growth and phase transformations in materials.

ENMA 472 Technology and Design of Engineering Materials (3) Prerequisite: ENMA300. Relationship between properties of solids and their engineering applications. Criteria for the choice of materials for electronic, mechanical and chemical properties. Particular emphasis on the relationships between the structure of solids and their potential engineering applications.

ENMA 481 Introduction to Electronic and Optical Materials (3) Prerequisite: ENMA300 or equivalent. Electronic, optical and magnetic properties of materials. Emphasis on materials for advanced optoelectronic and magnetic devices and the relationship between properties and the processing/fabrication conditions.

ENMA 489 Selected Topics in Engineering Materials (3) Prerequisite: permission of department. Repeatable to 12 credits if content differs. To introduce basic concepts such as crystal chemistry, defect chemistry and temary phase equilibria which can also be used to illustrate the various types of advanced ceramics (superconductors; superionic conductors; dielectrics including ferroeletrics; optical materials; high temperature structural materials; etc.) and allow an understanding of their behaviors.

ENMA 490 Materials Design (3) One hour of lecture and six hours of laboratory per week. Senior standing. Capstone design course. Students work in teams on projects evaluating a society or industry based materials problem and then design and evaluate a strategy to minimize or eliminate the problem; includes written and oral presentations.

ENMA 495 Polymeric Engineering Materials I (3) Prerequisite: ENMA300. Also offered as ENCH490. Credit will be granted for only one of the following: ENCH490 or ENMA495. Study of polymeric engineering materials and the relationship to structural type. Elasticity, viscoelasticity, anelasticity and plasticity of single and multiphase materials. Emphasis is on polymetric materials.

ENMA 496 Processing and Engineering of Polymers (3) Prerequisite: ENMA495. Also offered as ENCH496. Credit will be granted for only one of the following: ENCH496 or ENMA496. Processing and engineering techniques for the conversion of polymeric materials into products are discussed. Processes considered include forming, bonding and modification operations. The effect of processing on the structure and properties of polymeric materials is emphasized.

ENMA 499 Senior Laboratory Project (1-3) Senior standing. Students work with a faculty member on an individual laboratory project in one or more of the areas of engineering materials. Students will design and carry out experiments, interpret data and prepare a comprehensive laboratory report.

ENME -- Engineering, Mechanical

ENME 201 Careers in Mechanical Engineering (1) The Mechanical Engineering Curriculum, Career Paths. Research areas in the Mechanical Engineering Department. The Mechanical Engineering Profession.

ENME 232 Thermodynamics (3) Two hours of lecture and two hours of laboratory per week. Prerequisite: PHYS260 and PHYS261 (Formerly: PHYS262). Introduction to thermodynamics. Thermodynamic properties of matter. First and second laws of thermodynamics, cycles, reactions, and mixtures.

ENME 271 Introduction to Matlab (3) Two hours of lecture and two hours of laboratory per week. Prerequisite: ENES221. Develop the skills to generate readable, compact and verifiably correct MATLAB scripts and functions to obtain numerical solutions to a wide range of engineering models and to display the results with fully annotated graphics. Learn structured programming.

ENME 320 Thermodynamics (3) Prerequisites: MATH141; and {PHYS260 and PHYS261 (Formerly: PHYS262)}. The properties, characteristics and fundamental equations of gases and vapors. Application of the first and second laws of thermodynamics in the analysis of basic heat engines, air compression vapor cycles. Flow and non-flow processes for gases and vapors.

ENME 331 Fluid Mechanics (3) Two hours of lecture and two hours of laboratory per week. Prerequisites: ENME232 and ENES221. Principles of fluid mechanics. Mass, momentum and energy conservation. Hydrostatics. Control volume analysis. Internal and external flow. Boundary layers. Modern measurement techniques. Computer analysis. Laboratory experiments.

ENME 332 Transfer Processes (3) Two hours of lecture and two hours of laboratory per week. Prerequisite: ENME331. The principles of heat transfer. Conduction in solids. Convection. Radiation. Modern measurement techniques. Computer analysis.

ENME 350 Electronics and Instrumentation I (3) Two hours of lecture and two hours of laboratory per week. Prerequisite: PHYS270 and 271 {Formerly PHYS263}. Credit will be granted for only one of the following: ENME252 or ENME350. Formerly ENME252. Modern instrumentation. Basic circuit design, standard microelectronic circuits. Digital data acquisition and control. Signal conditioning. Instrumentation interfacing. Designing and testing of analog circuits. Laboratory experiments.

ENME 351 Electronics and Instrumentation II (3) Two hours of lecture and two hours of laboratory per week. Prerequisites: ENME350 and (PHY 270 and 271 {Formerly PHYS263}). Continuation of ENME 350. Modern instrumentation. Basic circuit design, standard microelectronic circuits. Digital data acquisition and control. Signal conditioning. Instrumentation interfacing. Designing and testing of analog circuits. Laboratory experiments.

ENME 361 Vibration, Controls and Optimization I (3) Two hours of lecture and two hours of laboratory per week. Prerequisites: ENES220, ENES221, ENME271, and MATH246. For ENME majors only. Fundamentals of vibration, controls and optimization. Analysis and design in time, Laplace and frequency domains. Mathematical description of system response, system stability, control and optimization. Optimal design of mechanical systems.

ENME 371 Product Engineering and Manufacturing (3) Two hours of lecture and two hours of laboratory per week. Prerequisite: ENES221, ENME392, or STAT400. For ENME majors only. Business aspects of engineering product development. Relationship of design and manufacturing. Product specification. Statistical process control. Design team development. The development process.

ENME 382 Engineering Materials and Manufacturing Processes (3) Two hours of lecture and two hours of laboratory per week. Prerequisite: ENES220. Basic material structures and properties. Mechanical behavior of materials. Manufacturing processes theory. Materials processing. Quality assurance. Laboratory experiments.

ENME 386 Experiential Learning (3-6) Prerequisite: Learning Proposal approved by the Office of Experiential Learning Programs, faculty sponsor, and student's internship sponsor. Junior standing.

ENME 392 Statistical Methods for Product and Processes Development (3) Two hours of lecture and two hours of laboratory per week. Prerequisite: MATH241. Integrated statistical methodology for the improvement of products and processes in terms of performance, quality and cost. Designed experimentation. Statistical process control. Software application. Laboratory activities.

ENME 398 Honors Research Project (1-3)

ENME 400 Machine Design (3) Senior standing. Working stresses, stress concentration, stress analysis and repeated loadings. Design of machine elements. Kinematics of mechanisms.

ENME 408 Selected Topics in Engineering Design (3) Prerequisite: senior standing in mechanical engineering or permission of department. Repeatable to 6 credits if content differs. Creativity and innovation in design. Generalized performance analysis, reliability and optimization as applied to the design of components and engineering systems. Use of computers in design of multivariable systems.

ENME 410 Design Optimization (3) Introductory overview of single-objective optimization concepts, models and techniques with continuous variables. A semester-long project and applications of MATLAB and Excel for some of the homework and project assignments (among others) will be included.

ENME 414 Computer-Aided Design (3) Prerequisite: MATH241 or equivalent. Introduction to computer graphics. Plotting and drawing with computer software. Principles of writing interactive software. The applications of computer graphics in computer-aided design. Computer-aided design project.

ENME 423 Building Cooling Heating and Power Systems (3) Prerequisite: ENME232 and ENME332. Introduction to the evaluation of cooling, heating and power requirements of buildings. Description, design and evaluation of state-of-the-art and emerging integrated cooling, heating and power systems (engines, micro-turbines, absorption and desiccant systems) as they are applied to buildings. The course uses the Chesapeake building facility and the campus cogeneration facility as real-life demonstration examples.

ENME 426 Production Management (3) Credit will be granted for only one of the following: BMGT385, ENME426 or ENME489J. Formerly ENME489J. The basic concepts and models needed to understand and design manufacturing systems, including the history of manufacturing, performance measures, queuing systems, variability, production planning and scheduling, lean manufacturing, and pull production control.

ENME 430 Fundamentals of Nuclear Reactor Engineering (3) Prerequisite: MATH246 and permission of department. Credit will be granted for only one of the following: ENME430 or ENME489N. Formerly ENME489N. Fundamental aspects of nuclear physics and nuclear engineering, including nuclear interactions; various types of radiation and their effects on materials and humans; and basic reactor physics topics, including simplified theory of reactor critically.

ENME 454 Vehicle Dynamics (3) Formerly ENME489V. The fundamentals of passenger vehicle and light truck design and vehicle dynamics are covered. The engineering principles associated with acceleration, braking, handling, ride quality, aerodynamics, and tire mechanics are discussed, as well as suspension and steering design.

ENME 461 Control Systems Laboratory (3) Two hours of lecture and three hours of laboratory per week. Prerequisite: ENME351, ENME361, and permission of department. Credit will be granted for only one of the following: ENEE461, ENME461, or ENME489N. Formerly ENME489N. Students will design, implement, and test controllers for a variety of systems. This will enhance their understanding of feedback control familiarize them with the characteristics and limitations of real control devices. Students will also complete a small project. This will entail writing a proposal, purchasing parts for their controller, building the system, testing it, and writing a final report describing what they have done.

ENME 462 Vibrations, Controls, and Optimization II (3) Two hours of lecture and two hours of discussion/recitation per week. Prerequisites: ENME351 and ENME361. Formerly ENME362. Continuation of ENME 361. Fundamentals of vibration, controls, and optimization. Analysis and design in time, Laplace and frequency domains. Mathematical descriptions of system response, system stability, control and optimization. Optimal design of mechanical systems.

ENME 465 Introductory Fracture Mechanics (3) Senior standing in engineering. An examination of the concepts of fracture in members with pre-existing flaws. Emphasis is primarily on the mechanics aspects with the development of the Griffith theory and the introduction of the stress intensity factor, K, associated with different types of cracks. Fracture phenomena are introduced together with critical values of the fracture toughness of materials. Testing procedures for characterizing materials together with applications of fracture mechanics to design.

ENME 470 Finite Element Analysis (3) Senior standing. Basic concepts of the theory of the finite element method. Applications in solid mechanics and heat transfer.

ENME 472 Integrated Product and Process Development (3) Two hours of lecture and two hours of laboratory per week. Prerequisite: ENME371. Integration of product development with the development process. Design strategies. Product architecture. Design for manufacturing. Selection of materials. Design for assembly.

ENME 473 Mechanical Design of Electronic Systems (3) Prerequisites: ENME310; and ENME360; and ENME321. Design considerations in the packaging of electronic systems. Production of circuit boards and design of electronic assemblies. Vibration, shock, fatigue and thermal considerations.

ENME 474 Design in Electronic Product Development (3) Prerequisite: ENME473. Merges technology, analysis, and design concepts into a single focused activity that results in the completed design of an electronic product. A set of product requirements are obtained from an industry partner, the students create a specification for the product, iterate the specification with the industry partner, then design and analyze the product. Students will get hands-on experience using real design implementation tools for requirements capture, tradeoff analysis, scheduling, physical design and verification. Issues associated with transferring of the design to manufacturing and selection of manufacturing facilities will also be addressed.

ENME 476 Mircoelectromechanical Systems (MEMS) I (3) Three hours of lecture and one hour of laboratory per week. Senior standing. Credit will be granted for only one of the following: ENME476 or ENME489F. Formerly ENME489F. Fundamentals of microelectromechanical systems (MEMS). Introduction to transducers and markets. MEMS fabrication processes and materials, including bulk micromachining, wet etching, dry etching, surface micromachining, sacrificial layers, film deposition, bonding, and non-traditional micromachining. Introduction to the relevant solid state physics, including crystal lattices, band structure, semiconductors, and doping. The laboratory covers safety, photolithography, profilometry, wet etching.

ENME 477 Microelectromechanical Systems (MEMS) II (3) Two hours of lecture and two hours of laboratory per week. Prerequisite: ENME476. Fabrication of devices designed in MEMS I, including everything from mask printing through training on state-of-the-art fabrication equipment through device testing. In-depth understanding of MEMS devices and technologies, such as mechanical and electromagnetic transducers, microfluidics, and chemical sensors.

ENME 488 Special Problems (3) Prerequisite: permission of department. Advanced problems in mechanical engineering with special emphasis on mathematical and experimental methods.

ENME 489 Special Topics in Mechanical Engineering (3) Prerequisite: permission of department. Repeatable to 6 credits with permission of advisor. Selected topics of current importance in mechanical engineering.

ENME 490 Mechanical Engineering Honors Seminar (1) Prerequisite: Permission of the Mechanical Engineering Honors Program. For ENME majors only. New trends and technologies in Mechanical Engineering.

ENNU -- Engineering, Nuclear

ENNU 215 Introduction to Nuclear Technology (3) Prerequisites: MATH141; and PHYS161. Engineering problems of the nuclear energy complex, including basic theory, use of computers, nuclear reactor design and isotopic and chemical separations.

ENNU 310 Environmental Aspects of Nuclear Engineering (3) Prerequisites: (MATH241 or MATH246; and {PHYS270 and 271 (Formerly PHYS263)}) or permission of both department and instructor. Evaluation of environmental and safety aspects of nuclear power reactors. Calculations of radioactive decay, activation, shielding, radiation monitoring. Biological effects of radiation, waste handling, siting, plant design and operations, as related to environment safety and licensing regulations.

ENNU 320 Nuclear Reactor Operation (3) Two hours of lecture and two hours of laboratory per week. Introduction to nuclear reactor operations. Outline of reactor theory. Nature and monitoring techniques of ionizing radiation, radiation safety. Reactor instrument response. Operation of the University of Maryland nuclear reactor.

ENNU 386 Experiential Learning (3-6) Prerequisite: Learning Proposal approved by the Office of Experiential Learning Programs, faculty sponsor, and student's internship sponsor. Junior standing.

ENNU 398 Honors Research Project (1-3)

ENNU 440 Nuclear Technology Laboratory (3) One hour of lecture and four hours of laboratory per week. Prerequisites: MATH240; and PHYS263. Techniques of detecting and making measurements of nuclear or high energy radiation. Radiation safety experiments. Both a subcritical reactor and the swimming pool critical reactor are sources of radiation.

ENNU 441 Nuclear Engineering Laboratory I (1) One hour of lecture and two hours of laboratory per week. Corequisite: ENNU450. Methods of radiation detection. Principles and uses of radiation detectors and electronics. Geiger counting and statistical analysis. Fundamentals of gamma spectroscopy.

ENNU 442 Nuclear Engineering Laboratory II (1) One hour of lecture and two hours of laboratory per week.

Prerequisite: ENNU441. Corequisite: ENNU455. Principles of radiation detectors and electronics. Use of Maryland University Training Reactor for criticality experiments and activation analysis. Fundamental heat transfer experiments. Data acquisition and analysis.

ENNU 443 Nuclear Engineering Laboratory III (1) One hour of lecture and two hours of laboratory per week. Prerequisites: ENNU441 and ENNU442. Heat transfer, fluid flow, boiling experiments. Applications to reactor systems and components. Observation of thermalhydraulic phenomena. Gamma shielding analysis.

ENNU 450 Nuclear Reactor Engineering I (3) Prerequisites: (MATH246 and {PHYS270 and 271 (Formerly PHYS263)}) or permission of both department and instructor. Elementary nuclear physics, reactor theory, and reactor energy transfer. Steady-state and time-dependent neutron distributions in space and energy. Conduction and convective heat transfer in nuclear reactor systems.

ENNU 455 Nuclear Reactor Engineering II (3) Prerequisite: ENNU450. General plant design considerations including radiation hazards and health physics, shielding design, nuclear power economics, radiation effects on reactor materials, and various types of nuclear reactor systems.

ENNU 465 Nuclear Reactor Systems Analysis (3) Prerequisites: (MATH246; and {PHY 270 and 271 (Formerly PHY 263)}; and ENN 455) or permission of both department and instructor. Power reactor (BWR,PWR,HTGR) system design and analysis. System specifications and modes of operation. Plant documentation (PSAR,FSAR, etc.). Piping and instrumentation drawings. Theory and application of pump and piping calculations. Steam power plant cycles and calculations. Steam plant equipment (turbines, heaters, condensers, etc.) analysis.

ENNU 468 Research (2-3) Prerequisite: permission of both department and instructor. Repeatable to 6 credits. Investigation of a research project under the direction of one of the staff members. Comprehensive reports are required.

ENNU 480 Reactor Core Design (3) Prerequisite: ENNU450 or permission of both department and instructor. Design of nuclear reactor cores based on a sequence of standard computer codes. Thermal and epithermal cross sections, multigroup diffusion theory in one and two dimensions and fine structure flux calculations using transport theory.

ENNU 485 Nuclear Reactor Thermalhydraulics (3) Prerequisites: ENNU465, ENME321 and ENME342 or equivalent. Thermalhydraulic response of nuclear power plant systems. Accident analysis and impact of emergency systems. Boiling phenomena, nucleate boiling, critical heat flux, condensation. Containment thermalhydraulic analysis. Overview of principal thermalhydraulic computer codes.

ENNU 489 Special Topics in Nuclear Engineering (3) Prerequisite: permission of department. Repeatable to 6 credits if content differs. Selected topics of current importance in nuclear engineering.

ENNU 490 Nuclear Fuel and Power Management (3) Prerequisites: {ENNU460; and ENNU480} or permission of both department and instructor. Physics and economics of the nuclear fuel cycle utilizing existing design codes. Mining, conversion, enrichment, fabrication, reprocessing processes. Effects of plutonium recycle, in-core shuffling, fuel mechanical design and power peaking on fuel cycle costs.

ENNU 495 Nuclear Engineering Systems Design (3) Two hours of lecture and three hours of laboratory per week. Prerequisites: ENNU455 and ENNU480 and Senior standing in nuclear engineering. Senior capstone design course. Major design experience that emphasizes putting student's engineering knowledge into practice. Design topic is one of current interest in nuclear engineering. Design methodology, creativity, feasibility, reliability, and economic analyses of the overall design required. Students work in teams, and present oral and written design reports.

ENPM -- Engineering, Professional Masters

ENPM 489 Special Topics in Engineering (1-6) Repeatable to 12 credits if content differs. Special topics selected by the faculty for students in the Professional Master of Engineering Program.

ENRE -- Reliability Engineering

ENRE 445 Applied Reliability Engineering I (3) Prerequisite: MATH246, PHYS270 and 271 (Formerly: PHYS263), or permission of instructor. Credit will be granted for only one of the following: ENRE445 or ENRE489C. Formerly ENRE489C. Topics covered include: fundamental understanding of how things fail, probabilistic models to represent failure phenomena, life-models for non-repairable items, reliability data collection and analysis and applicable quality techniques. Distribution functions such as the normal, Weibull, exponential, binomial, and gamma are explored.

ENRE 446 Applied Reliability Engineering II (3) Prerequisite: MATH246, PHYS270 and 271 {Formerly: PHYS263}, or permission of instructor. Credit will be granted for only one of the following: ENRE446 or ENRE489D. Formerly ENRE489D. Topics covered include: System modeling and analysis, designing for reliability, reliability testing, reliability in manufacturing, and reliability management. Fault tree analysis, RBD, and cut sets are covered along with sneak circuits, time-on-test plots and acceptance testing.

ENRE 447 Fundamentals of Reliability Engineering (3) Credit will be granted for only one of the following: ENRE445 or ENRE447. Formerly ENRE445. Topics covered include: fundamental understanding of how things fail, probabilistic models to represent failure phenomena, life-models for non-repairable items, reliability data collection and analysis, software reliability models, and human reliability models.

ENRE 452 Software Testing (3) Prerequisite: CMSC114 or CMSC214; and CMSC/MATH475 or MATH461; or permission of department. Topics covered include: Methods for unit testing, and system testing; Structural testing (flowgraphs and data-flows); Functional testing (behavioral models and textual descriptions); Deterministic and statistical generation of inputs; testing of object-oriented programs.

ENRE 489 Special Topics in Reliability Engineering (3) Prerequisite: permission of department. Repeatable to 6 credits if content differs. Selected topics of current importance in reliability engineering.

ENSP -- Environmental Science and Policy

ENSP 101 Introduction to Environmental Science (3) Three hours of lecture and one hour of discussion/recitation per week. Not open to students who have completed BSCI235 or PBIO205. One of two required courses that introduce students to the topics studied and methods employed in environmental science and policy. Emphasis on scientific ways of knowing; the systems, cycles, flows, and interfaces that characterize the atmosphere, lithosphere, hydrosphere, and biosphere; the analysis of human impacts on these systems; and the nature of scientific uncertainty and methods of quantifying environmental processes.

ENSP 102 Introduction to Environmental Policy (3) Three hours of lecture and one hour of discussion/recitation per week. Second of two courses that introduce students to the topics studied and methods employed in environmental science and policy. Emphasis on the process of formulating, implementing, and evaluating policy responses to environmental problems, with particular attention to policy controversies related to scientific uncertainty, risk assessment, the valuation of nature, and distributional equity. May be taken before or after ENSP101.

ENSP 210 Environment-Related Careers: Academic and Career Exploration (1) Not open to students who have completed more than 60 credits. Credit will be granted for only one of the following: CPSP118E or ENSP210. Explore environment-related majors and careers. Begin academic planning and professional development activities. A course for freshmen and sophomores.

ENSP 330 Introduction to Environmental Law (3) Prerequisite: permission of department. Recommended: ENSP101 and ENSP102. Junior standing. Credit will be granted for only one of the following: ENSP330 or ENSP399A. Formerly ENSP399A. An overview of environmental law, from its common law roots to its role in the modern regulatory state, including an examination of major federal environment statutes and the policy debates inherent in them. Other areas covered include civil and criminal enforcement, standing to sue, land use control, and regulatory takings.

ENSP 386 Internship (3-6) Prerequisite: internship proposal approved by the specialty advisor, the director of ENSP and the student's internship sponsor.

ENSP 399 Special Topics in Environmental Science and Policy (1-3) Restricted to ENSP majors or permission of department. Repeatable to 12 credits if content differs. A substantive and specialized examination of contemporary issues in environmental science or policy.

ENSP 400 Capstone in Environmental Science and Policy (3) Prerequisite: Senior Standing or Permission of the

Director of ENSP; ENSP101 and 102. For ENSP majors only. Integration of physical, biological, and social sciences with applications to environmental science and policy. Problem-solving and multi-disciplinary case study evaluations pertinent to contemporary and future issues related to the environment.

ENSP 499 Honors Thesis Research (1-6) Prerequisite: Admission to ENSP Honors and permission of department. Repeatable to 6 credits. Individual research, thesis, and oral defense. The research project will be conducted under the supervision of a faculty member.

ENST -- Environmental Science and Technology

ENST 100 International Crop Production-Issues and Challenges in the 21st (3) Century Credit will be granted for only one of the following: ENST100 or NRSC100. Formerly NRSC100. Examines the role of crop production in elevating humans out of poverty in developing countries. It will introduce students to the basic principles of plant and soil science underlying the international production of food crops and world food security. The role of multinational agencies such as the World Bank in the promotion of sustainable crop production using environmentally-sound technologies will also be discussed.

ENST 105 Soil and Environmental Quality (3) Credit will be granted for only one of the following: ENST105 or NRSC105. Formerly NRSC105. Soil as an irreplaceable natural resource, the importance of soils in the ecosystem, soils as sources of pollution, and soils as the media for the storage, assimilation or inactivation of pollutants. Acid rain, indoor radon, soil erosion and sedimentation, nutrient pollution of waters, homeowners' problems with soils, and the effect of soils on the food chain.

ENST 200 Fundamentals of Soil Science (4) Prerequisite: CHEM103, or CHEM131 and CHEM132; or permission of department. Credit will be granted for only one of the following: ENST200 or NRSC200. Formerly NRSC200. Study and management of soils as natural bodies, media for plant growth, and ecosystem components. Morphology, composition, formation, and conservation of soils. Chemical, biological, and physical properties are discussed in relation to the production of plants, the functioning of hydrologic and nutrient cycles, the protection of environmental quality, and engineering uses of soils.

ENST 214 Introduction to Fish and Wildlife Sciences (3) Prerequisite: A course in Biology or permission of instructor. Lectures, discussion, and readings in social, biological, and human dimension issues facing fisheries and wildlife biologists and natural resource managers in the United States. Coverage will include history and philosophical discussions of fish and wildlife sciences; conversation and management; principles of community, habitat, and animal ecology and management; and interrelations of wildlife, fish, and forestry.

ENST 233 Introduction to Environmental Health (3) How humans are affected by the quality of our air, water, soil, and food supply as well as how human activities altered these survival necessities are examined. Students will learn how the evolution and prosperity of human populations have resulted in degredation of our environment and the impact of environmental degradation on the health of people.

ENST 250 Environmental Issues and Culture in USA and Russia (1) Recommended for Freshmen and Sophomores only. Explore environmental issues and culture with university students at Moscow State University of Environmental Engineering, Moscow, Russia via weekly videoconferences. Culture and environmental issues of both countries will be examined via individual and group presentations and guided discussions.

ENST 308 Field Soil Morphology (1-2) One hour of lecture and two hours of laboratory per week. Prerequisite: permission of department. Repeatable to 4 credits. Formerly NRSC308. Intensive field study of soils with particular emphasis on soil morphology, soil classification, and agricultural and urban soil interpretations. Focus in fall semesters is on soils of the Northeast U.S. Focus in spring semesters is on soils outside the Northeast region. The lab period is devoted to field trips, and student efforts culminate in a mandatory extended field trip.

ENST 314 Biology and Management of Finfish (4) Two hours of lecture and six hours of laboratory per week. Prerequisite: One year of course work in Biological Sciences. Credit will be granted for only one of the following: ENST314 or NRMT314. Formerly NRMT314. Fundamentals of individual and population dynamics; theory and practice of sampling fish populations; management schemes.

ENST 388 Honors Thesis Research (3-6) Prerequisite: admission to AGNR Honors Program. Repeatable to 6 credits if content differs. Credit will be granted for only one of the following: NRMT388, NRSC388, or ENST388. Formerly

NRSC388. Undergraduate honors thesis research conducted under the direction of an AGNR faculty member in partial fulfillment of the requirements of the College of AGNR Honors Program. The thesis will be defended to a faculty committee.

ENST 389 Internship (3) Prerequisite: permission of department. For ENST, NRMT, NRSC-Conservation of Soil, Water and Environmental majors only. Formerly: NRSC389 and NRMT389. Repeatable to 6 credits if content differs. Credit will be granted for practical work carried out by students placed in work environment related to their stated career goals. Students must do an in-depth study in some portion of the work experience and produce a special project or report related to this study. A student work log is also recommended. An evaluation from the external supervisor of the project will be required. Credit arranged with supervising faculty member.

ENST 398 Seminar (1) Prerequisite: Senior standing. For NRSC and LARC majors only. Formerly NRSC398. Oral presentation of the results of investigational work by reviewing recent scientific literature in the various phases of natural resource sciences, horticulture and agronomy.

ENST 405 Energy and Environment (3) Prerequisite: MATH140 or MATH220. Junior standing. Credit will be granted for only one of the following: ENST405, ENST605, NRMT489Z, or MEES698Z. Formerly NRMT489Z. Introduction to the role of energy in environmental and human-dominated systems. Discussion of the historical and modern production and consumption of energy. Introduction to energy systems computer simulation and energy auditing.

ENST 411 Principles of Soil Fertility (3) Prerequisite: ENST200 or equivalent. Credit will be granted for only one of the following: ENST411 or NRSC411. Formerly NRSC411. Soil factors affecting plant growth and quality with emphasis on the bio-availability of mineral nutrients. The management of soil systems to enhance plant growth by means of crop rotations, microbial activities, and use of organic and inorganic amendments.

ENST 413 Soil and Water Conservation (3) Three hours of lecture and two hours of laboratory per week. Prerequisite: ENST200 (formerly NRSC200). Credit will be granted for only one of the following: ENST413 or NRSC413. Formerly NRSC413. Importance and causes of soil erosion and methods of soil erosion control. Effects of conservation practices on soil physical properties and the plant root environment. Irrigation and drainage as related to water use and conservation.

ENST 414 Soil Morphology, Genesis and Classification (4) Three hours of lecture and three hours of laboratory per week. Prerequisite: ENST200 (formerly NRSC200). Credit will be granted for only one of the following: ENST414 or NRSC414. Formerly NRSC414. Processes and factors of soil genesis. Taxonomy of soils of the world by U.S. System. Soil morphological characteristics, composition, classification, survey and field trips to examine and describe soils.

ENST 415 GIS Applications in Soil Science (4) Two hours of lecture and three hours of laboratory per week. Prerequisite: ENST200 (formerly NRSC200). Credit will be granted for only one of the following: ENST415 or NRSC415. Formerly NRSC415. Introduction to geospatial analysis of soil and related resources. Topics will include understanding the nature and portrayal of digital soils data in soil surveys, the use, analysis, and application of soil survey and other spatial data types (topography, hydrography, etc.), uncertainty and validation of spatial data, and methods in geospatial analysis such as mapping, landscape analysis, and spatial statistics. Analyses will be performed primarily with ESRI ArcGIS software.

ENST 417 Soil Hydrology and Physics (3) Prerequisites: ENST200 (formerly NRSC200) and a course in physics; or permission of department. Credit will be granted for only one of the following: ENST417 or NRSC417. Formerly NRSC417. A study of soil water interactions: the hydrologic cycle; the unique properties of water and soil; the soil components and their interactions; the field water cycle; transport processes involving water, heat and solutes; human effects on soil and groundwater; as well as the measurement, prediction, and control of the physical processes taking place in and through the soil.

ENST 420 Soil Physical Properties Laboratory (1) Pre- and corequisites: ENST417 (formerly NRSC417). Credit will be granted for only one of the following: ENST420 or NRSC420. Formerly NRSC420. A study of methods used in measuring static and dynamic soil physical properties. Implications from hands-on mastery of these techniques include an increased understanding of soil physical components, soil-water interactions, as well as the measurement, prediction, and control of the physical processes taking place in and through the soil.

ENST 421 Soil Chemistry (4) Prerequisite: ENST200 (formerly NRSC200). Credit will be granted for only one of the following: ENST421 or NRSC421. Formerly NRSC421. The chemistry and composition of mineral and organic colloids in soils, including ion exchange, oxidation-reduction, acidity, surface charge, and solution chemistry. Lectures and readings pertain to plant nutrition, waste disposal, and groundwater quality.

ENST 422 Soil Microbiology (3) Prerequisite: ENST200 (formerly NRSC200), CHEM104 or permission of department. Credit will be granted for only one of the following: ENST422 or NRSC422. Formerly NRSC422. Relationship of soil microorganisms to the soils' physical and chemical properties. Nitrogen fixation, mycorrhizae-plant interactions and microbially mediated cycling.

ENST 423 Soil-Water Pollution (3) Prerequisites: ENST200 (formerly NRSC200) and CHEM104; or permission of department. Credit will be granted for only one of the following: ENST423 or NRSC423. Reaction and fate of pesticides, agricultural fertilizers, industrial and animal wastes in soil and water with emphasis on their relation to the environment.

ENST 424 Field Study in Soil Morphology (4) Prerequisite: ENST200 (formerly NRSC200). Credit will be granted for only one of the following: ENST424 or NRSC424. Formerly NRSC424. The fundamentals of making morphological descriptions of soils, using standard techniques, terminology, and abbreviations of the National Cooperative Soil Survey. Given a regional perspective and reasonable assumptions regarding soil properties, students should become competent to classify soils which they have described in the field and also make interpretations concerning the suitability of soils for various potential uses.

ENST 425 Terrestrial Bioremediation (3) Prerequisite: one course in biology; and CHEM103 or CHEM131 and CHEM132; or permission of department. Credit will be granted for only one of the following: ENST425 or NRSC425. Formerly NRSC425. Biologically based methods for the remediation of contaminated soil. Bioremediation using bacteria, fungi and higher plants, of both organic and inorganic contaminants in soil will be addressed.

ENST 427 Nonpoint Source Pollution Assessment Techniques (3) Prerequisite: One course in hydrology or permission of department. Also offered as ENBE462. Credit will be granted for only one of the following: ENBE462 or ENST427. Various techniques to measure non-point source pollution, quantify mass transport, and statistically evaluate water quality criteria. Primary focus is on agriculture and water, but urban NPS pollution is addressed.

ENST 430 Wetland Soils (3) Prerequisite: ENST200 (formerly NRSC200). Credit will be granted for only one of the following: ENST430 or NRSC461. Formerly NRSC461. The soils of wetlands including hydrology, chemistry, genesis, and taxonomy are discussed. The understanding of federal and regional guidelines to wetland soils are covered with an emphasis on validating interpretations through field observations.

ENST 440 Crops, Soils and Civilization (3) Credit will be granted for only one of the following: ENST440 or NRSC440. Formerly NRSC440. Role and importance of crop and soil resources in the development of human civilization. History of crop and soil use and management as they relate to the persistence of ancient and modern cultures.

ENST 441 Sustainable Agriculture (3) Credit will be granted for only one of the following: ENST441 or NRSC441. Formerly NRSC441. Environmental, social and economic needs for alternatives to the conventional, high-input farming systems which currently predominate in industrial countries. Strategies and practices that minimize the use of non-renewable resources.

ENST 442 Remote Sensing of Agriculture and Natural Resources (3) Credit will be granted for only one of the following: ENST442 or NRSC444. Formerly NRSC444. Interaction of electromagnetic radiation with matter. Application of remote sensing technology to agriculture and natural resource inventory, monitoring and management and related environmental concerns.

ENST 444 Restoration Ecology (3) Prerequisite: MATH140. Credit will be granted for only one of the following: ENST444, NRMT489F, or NRMT444. Formerly NRMT489F. Discussion of the philosophies, principles, and practices of ecosystem restoration. Presentation of restoration case histories include wetlands, lakes, streams, coastal systems, mined lands, and new ecosystems.

ENST 450 Wetland Ecology (3) One hour of lecture and four hours of laboratory per week. Prerequisite: BIOM301 or permission of department. Also offered as MEES650. Credit will be granted for only one of the following: ENST450, NRMT450, or MEES650. Formerly NRMT450. Plant and animal communities, biogeochemistry, and ecosystem properties of wetland systems. Laboratory emphasizes collection and analysis of field data on wetland vegetation, soil, and hydrology.

ENST 451 Water Quality: Field and Lab Analysis Methods (3) Two hours of lecture and three hours of laboratory per week. Prerequisite: {CHEM131 and CHEM132}; and {CHEM104 or CHEM231 and CHEM232}. Credit will be granted for only one of the following: ENBE451, ENST451, or NRMT451. Formerly NRMT451. Hands-on experience with techniques for assessing physical, chemical, and biological characteristics of surface waters, including streams, lakes, and wetlands. Emphasis is placed on understanding effects of water quality on ecosystem structure and function.

ENST 454 Environmental Issues in Plant and Soil Sciences (3) Credit will be granted for only one of the following: ENST454 or NRSC454. Formerly NRSC454. Effects of air pollutants such as ozone, sulfur dioxide, acid rain, etc., and soil pollutants such as toxic metals and pesticides on the growth, productivity and quality of crops.

ENST 460 Principles of Wildlife Management (3) Three Saturday field trips are scheduled. Prerequisite: Two semesters of biology laboratory or permission of department. Credit will be granted for only one of the following: ENST460 or NRMT460. Formerly NRMT460. Ecological principles and requirements of wildlife as basis for management, and introduction to the scientific literature. Conflicts in wildlife management, government administration of wildlife resources, legislation, and history of the wildlife management profession.

ENST 461 Urban Wildlife Management (3) Two lectures per week.. Credit will be granted for only one of the following: ENST461 or NRMT461. Formerly NRMT461. Ecology and management of wildlife in urban areas. For students in biological sciences, geography, landscape design, natural resources management, recreation and urban studies. Planning, design, and wildlife conservation in landscape ecology. Public attitudes, preferences, and values, review of private conservation organizations.

ENST 462 Field Techniques in Wildlife Management (2) Four hours of laboratory per week. Recommended: NRMT460 and NRMT461. Credit will be granted for only one of the following: ENST462, NRMT462, or NRMT489B. Formerly NRMT462. Hands-on experience with field techniques in wildlife management focusing on various methods of conducting indices, estimates, and censuses of wildlife populations. Includes capture and handling of amphibians, reptiles, birds, and mammals by use of drift fences, cover boards, mist nets, box traps, and dart guns.

ENST 470 Natural Resources Management (4) 85 semester hours. For NRMT and ENST majors only. Field work and independent research on watersheds. Intensive seminar on resource management planning and report preparation.

ENST 479 Tropical Ecology and Resource Management (1-6) Prerequisites: BSCI106, an introductory economics course, and permission of instructor. Repeatable to 10 credits if content differs. Formerly NRMT479. Tropical ecosystems and issues of human use and impact. Includes lectures which lead up to an off-campus trip in a tropical environment.

ENST 487 Conservation of Natural Resources I (3) Credit will be granted for only one of the following: ENST487 or NRMT487. Formerly NRMT487. Designed primarily for teachers. Study of state's natural resources: soil, water, fisheries, wildlife, forests and minerals; natural resources problems and practices. Extensive field study. Concentration on subject matter. Taken concurrently with NRMT 497 in summer season.

ENST 489 Field Experience (1-4) Prerequisite: permission of department. Repeatable to 6 credits. Formerly NRMT489. Planned field experience for both major and non-major students.

ENST 497 Conservation of Natural Resources II (3) Credit will be granted for only one of the following: ENST497 or NRMT497. Formerly NRMT497. Designed primarily for teachers. Study of state's natural resources: soil, water, fisheries, wildlife, forests and minerals; natural resources problems and practices. Extensive field study. Methods of teaching conservation included. Taken concurrently with ENST487 in summer season.

ENST 499 Special Topics in Environmental Science and Technology (1-4) Prerequisite: permission of department. Formerly NRSC499 and NRMT499. Credit will be granted for only one of the following: ENST499, NRMT499, or NRSC499. An independent study, and/or lecture, and/or laboratory series organized to study a selected phase of Environmental Science and Technology not covered by existing courses. Credit arranged with supervising faculty member.

FMSC -- Family Science

FMSC 105 Individuals in Families (3) Credit will be granted for only one of the following: FMSC105 or FMST105. Formerly FMST105. Personal growth and development within the family context. Exploration of self-awareness, sex-role image, life transitions, and interpersonal and family relations.

FMSC 260 Couple Relationships (3) Credit will be granted for only one of the following: FMSC260 or FMST260. Formerly FMST260. Couple relationships and their alternatives in contemporary dating, courtship and marriage.

FMSC 290 Family Economics (3) Credit will be granted for only one of the following: FMSC290 or FMST290. Formerly FMST290. Application of economic methodology to study families under various economic situations. Examination of how decisions about marriage, divorce, fertility, consumption and time use are influenced by labor/housing markets, tax structure, social welfare benefits and other economic considerations.

FMSC 298 Special Topics in Family Science (1-3) Repeatable to 12 credits if content differs. Formerly FMST298. Topics of special interest under the general guidance of the Department of Family Studies.

FMSC 302 Research Methods in Family Science (3) Prerequisite: introductory statistics course. For FMSC majors only. Credit will be granted for only one of the following: FMSC302 or FMST302. Formerly FMST302. Introduction to the methods of the social and behavioral sciences employed in family science. The role of theory, the development of hypotheses, measurement, design, and data analysis.

FMSC 330 Family Theories and Patterns (3) Junior standing. Credit will be granted for only one of the following: FMSC330 or FMST330. Formerly FMST330. Theory and research on the family, including a cross-cultural analysis of family patterns.

FMSC 332 Children in Families (3) Prerequisite: FMSC/FMST105 or PSYC100. Credit will be granted for only one of the following: FMSC332 or FMST332. Formerly FMST332. A family life education approach to the study of children and families. Emphasis on the interaction of children with parents, siblings, extended kin, and the community.

FMSC 341 Personal and Family Finance (3) Credit will be granted for only one of the following: FMSC341 or FMST341. Formerly FMST341. Individual and family financial strategies with emphasis on financial planning, savings, investments, insurance, income taxes, housing, and use of credit. Planning, analyzing, and controlling financial resources to resolve personal/family financial problems and to attain financial security.

FMSC 381 Poverty, Affluence, and Families (3) Prerequisite: SOCY100 or SOCY105. Credit will be granted for only one of the following: FMSC381 or FMST381. Formerly FMST381. Social, political, cultural and economic factors influencing income and wealth in American families.

FMSC 383 Delivery of Human Services to Families (3) Prerequisite: FMSC/FMST330. Credit will be granted for only one of the following: FMSC381 or FMST381. Formerly FMST381. Processes of service delivery with special emphasis upon relationships among managers, service providers and clients. The impact of human service systems on families.

FMSC 386 Experiential Learning (3-6) Prerequisite: permission of department. Junior standing. Credit will be granted for only one of the following: FMSC386 or FMST386. Formerly FMST386.

FMSC 399 Independent Study (1-6) Prerequisite: permission of department. Repeatable to 12 credits. Formerly FMST399.

FMSC 430 Gender Issues in Families (3) Prerequisite: SOCY100 or SOCY105 or PSYC100. Also offered as WMST430. Credit will be granted for only one of the following: FMSC430, FMST430 or WMST430. Formerly FMST430. The development of historical, cultural, developmental, and psychosocial aspects of masculinity and femininity within the context of contemporary families and the implications for interpersonal relations.

FMSC 431 Family Crises and Intervention (3) Prerequisite: PSYC100. Credit will be granted for only one of the following: FMSC431 or FMST431. Formerly FMST431. Family crises such as divorce, disability, substance abuse, financial problems, intra-familial abuse, and death. Theories and techniques for intervention and enhancement of family coping strategies.

FMSC 432 Adult Development and Aging in Families (3) Prerequisite: PSYC100; and {SOCY100 or SOCY105}; and FMSC/FMST332 {or a comparable development course}. Credit will be granted for only one of the following: FMSC432 or FMST432. Formerly FMST432. Theory, research, history, and programming related to adult development and aging in the intergenerational context of family.

FMSC 452 Family Policy Analysis (3) Prerequisite: permission of department. Credit will be granted for only one of the following: FMSC452 or FMST452. Formerly FMST452. Examination of public, private, and nonprofit sector policies and their impact on the quality of family life. Emphasis on policy formation, implementation, and evaluation.

FMSC 460 Violence in Families (3) Prerequisite: PSYC100 or SOCY100 or SOCY105. Credit will be granted for only one of the following: FMSC460 or FMST460. Formerly FMST460. Theories of child, spouse, and elder abuse in the family setting. Emphasis on historical, psychological, sociological and legal trends relating to physical, emotional, and sexual abuse. Introduction to methods for prevention and remediation.

FMSC 477 Internship and Analysis in Family Science (3) Prerequisite: FMST383, plus an additional six FMSC/FMST credits and permission of department. For FMST majors only. Credit will be granted for only one of the following: FMSC477, FMST347 or FMST477. Formerly FMST477. A supervised internship and a seminar requiring analysis. Opportunities to integrate theory and practice including 120 hours of contracted field experience. Summer or fall internship contracts due May 1; Spring contracts due December 1. See department for application procedures.

FMSC 480 Work and Family Issues and Programs (3) Credit will be granted for only one of the following: FMSC480 or FMST480. Formerly FMST480. The purpose, nature, organization and administration of work site, or employer-based, family support resources, including child and elder care referral and subsidies, parenting education, health and wellness programs, parental and sick child leaves, and flexible work scheduling.

FMSC 485 Introduction to Family Therapy (3) Prerequisite: FMSC/FMST330 or FMSC/FMST370; or one psychology course at 300 or above level. Credit will be granted for only one of the following: FMSC485 or FMST485. Formerly FMST485. The fundamental theoretical concepts and clinical procedures of marital and family therapy including premarital and divorce therapy issues.

FMSC 487 Legal Aspects of Family Problems (3) Credit will be granted for only one of the following: FMSC487 or FMST487. Formerly FMST487. Laws and legal procedures, with emphasis on adoption, marriage, divorce, annulment, and property rights, and how they affect family life.

FMSC 490 Family and Addiction (3) Prerequisite: SOCY100 or SOCY105 or PSYC100 or permission of instructor. Theory, research, and clinical practice in the area of addictions and recovery as they relate to family processes.

FMSC 497 The Child and the Law (3) Credit will be granted for only one of the following: FMSC497 or FMST497. Formerly FMST497. Legislation and case law regarding children's legal rights with emphasis on the rights of children in the juvenile justice system, and rights to medical, educational, and other social services.

FMSC 498 Special Topics: Family Science (1-3) Prerequisite: permission of department. Repeatable to 6 credits if content differs. Formerly FMST498. Special course topics in family studies.

FOLA -- Foreign Language

FOLA 108 Elementary Foreign Languages I (3) Repeatable if content differs. The first semester of conversational study of a language not otherwise offered. The arts and humanities language requirement may be fulfilled by successful completion of FOLA108, FOLA109, FOLA118 and FOLA119 in a single language.

FOLA 109 Elementary Foreign Languages II (3) Prerequisite: FOLA108 in the subject language or permission of department. Repeatable if content differs. The second semester of conversational study of a language not otherwise offered. The arts and humanities language requirement may be fulfilled by successful completion of FOLA108, FOLA109, FOLA118 and FOLA119 in a single language.

FOLA 118 Intermediate Foreign Languages I (3) Prerequisite: FOLA109 in the subject language or permission of department. Repeatable if content differs. The third semester of conversational study of a language not otherwise offered. The arts and humanities language requirement may be fulfilled by successful completion of FOLA108, FOLA109, FOLA118 and FOLA119 in a single language.

FOLA 119 Intermediate Foreign Language II (3) Prerequisite: FOLA118 in the subject language or permission of department. Repeatable if content differs. Developing intermediate language skills, in both grammar and vocabulary; enhancement of oral and writing abilities.

FOLA 128 Introductory Middle Eastern Languages I (3) Prerequisite: permission of department. Repeatable to 9 credits if content differs. An introduction to the three principal languages of the Islamic Middle East: Arabic, Persian, and Turkish. Only standard written form of the three languages is taught. May not be used to satisfy arts and humanities language requirement.

FOLA 129 Introductory Middle Eastern Languages II (3) Prerequisite: FOLA128 and permission of department. Repeatable to 9 credits if content differs. Continuation of FOLA128. May not be used to satisfy arts and humanities language requirement.

FOLA 138 Directed Study of a Foreign Language I (3) Open only by permission of department to students of high motivation and proven language learning aptitude. Directed study of a modern foreign language with use of a self-instructional approach.

FOLA 139 Directed Study of a Foreign Language II (3) Prerequisite: FOLA138 in the same language or permission of department. A continuation of FOLA138.

FOLA 148 Directed Study of a Foreign Language III (3) Prerequisite: FOLA139 in the same language or permission of department. A continuation of FOLA139.

FOLA 149 Directed Study of a Foreign Language IV (3) Prerequisite: FOLA148 in the same language or permission of department. A continuation of FOLA148.

FOLA 158 Directed Study of a Foreign Language (Intensive) I (6) Open only by permission of department to students of very high motivation and proven language learning aptitude. Intensive directed study of a modern foreign language with use of a self-instructional approach. Equivalent to FOLA138 plus FOLA139.

FOLA 159 Directed Study of a Foreign Language (Intensive) II (6) Prerequisite: FOLA158 in the same language or permission of department. A continuation of FOLA158. Equivalent to FOLA148 plus FOLA149.

FOLA 228 Intermediate Middle Eastern Languages I (3) Prerequisite: FOLA129 and permission of department. Repeatable to 9 credits if content differs. Continuation of FOLA129. May not be used to satisfy arts and humanities language requirement.

FOLA 329 Advanced Middle Eastern Languages II (3) Prerequisite: FOLA328 or permission of department. Repeatable to 9 credits if content differs. Continuation of FOLA328. May not be used to satisfy arts and humanities language requirement.

FOLA 386 Experiential Learning (3-6) Prerequisite: permission of department. Junior standing.

FOLA 389 Foreign Civilization (3) Repeatable to 6 credits if content differs. A survey of the cultural history, arts and letters, folklore and life-style of the speakers of a language not otherwise offered. All readings and instruction in English.

FOLA 408 Foreign Language I (3) Intensive study of a foreign language or related topic not available under one of the current foreign language departments or programs. May not be used to fulfill the arts and humanities language requirement.

FOLA 409 Foreign Language II (3) Prerequisite: FOLA408 in the same language or topic. A continuation of FOLA 408. May not be used to fulfill arts and humanities language requirement.

FOLA 459 Foreign Literature in Translation (3) Repeatable to 6 credits if content differs. Reading and discussion of selected authors, periods or genres of a foreign literature not otherwise offered. All readings and instruction in English.

FREN -- French

FREN 101 Elementary French I (4) Four classroom meetings per week. Not open to students with 2 or more years of high school level French or to native/fluent speakers of French. Introduction to basic structures and pronunciation with emphasis on the four skills: listening, speaking, reading and writing.

FREN 102 Elementary French II (4) Four classroom meetings per week. Prerequisite: FREN101 at UMCP or permission of department. Further work on basic structures and pronunciation with emphasis on the four skills: listening, speaking, reading and writing.

FREN 103 Intensive Elementary French (4) Four classroom meetings per week. Not open to students who have completed FREN101, FREN102, more than two years of high school French, or to fluent/native speakers of French.

Credit will be granted for only one of the following: FREN102 or FREN103. Covers speaking, reading, writing, listening, and culture of French-speaking world.

FREN 201 Intermediate French (4) Four classroom meetings per week. Prerequisite: FREN102. Not open to native/fluent speakers of French. Not open to students who have completed four years (Level 4) of high school French or are fluent/native speakers of French. Credit will be granted for only one of the following: FREN201 or FREN203. Formerly FREN203. Completion of work on basic structures and pronunciation with emphasis on the four skills: listening, speaking, reading and writing. Fulfills the Arts and Humanities Language Requirement.

FREN 203 Intensive Intermediate French (4) Prerequisite: FREN103 or equivalent. Not open to students who have completed FREN201, four years of high school French, or to fluent/native speakers of French. Credit will be granted for only one of the following: FREN201, FREN202 or FREN203. Formerly FREN202. Covers speaking, reading, writing, listening, and culture of French-speaking world.

FREN 204 French Grammar and Composition (3) Prerequisite: FREN201 or FREN203. Open to students who have completed 4 years (Level 4) of high school French. Not open to native/fluent speakers of French. Intensive study of French grammar and composition.

FREN 211 French Reading and Conversation (3) Not open to native/fluent speakers of French. Prerequisite: FREN201 or FREN203. Practice in spoken French at intermediate level based on readings in a variety of genres. Written homework and exams.

FREN 240 Masterworks of French Literature in Translation (3) Major works of French literature from pre-revolutionary France to the present. Emphasis on the individual in a social context. In English.

FREN 241 Women Writers of French Expression in Translation (3) Also offered as WMST241. Credit will be granted for only one of the following: FREN241 or WMST241. Works and ideas of 20th century women writers of French in Canada, Africa, the Caribbean and France. Taught in English.

FREN 242 Francophone Writers of Africa and the African Diaspora (3) An analysis of the works and ideas of 20th and 21st century Francophone writers (Africa, the Caribbeans, France). Taught in English.

FREN 243 Masterpieces in French and Francophone Cinemas (3) This course, taught in English, will present a large array of films directed by famous French directors (Jean Renoir, Robert Bresson, Jean-Luc Godard, Agnes Varda, etc..) and Francophone filmmakers (Arcand, Sembene) who were internationally known in their time and have had a considerable influence on today's filmmakers in the U.S. (Tarantino, Lynch, Lee, etc..) and abroad (Sissoko, Angelopoulos, VonTrier, ect..).

FREN 250 Introduction to French Literature (3) Not open to native/fluent speakers of French. Prerequisite: FREN204 or equivalent. Recommended: FREN211. Selected readings from various genres in French literature. Discussion and brief written reports in French.

FREN 298 Aspects of French Civilization (3) Credit may not be applied to French major. Repeatable to 6 credits if content differs. Formerly FREN370. Topic to be determined each semester. Historical or thematic approaches to French art, literature, and culture. Taught in English.

FREN 301 Composition and Style (3) Not open to native or fluent speakers of French. Prerequisite: FREN250 or equivalent. Grammatical analysis, elements of style; range of written genres.

FREN 302 Translation: French to English (3) Prerequisite: FREN301 or equivalent. Practicum in translation primarily from French to English; contrastive analysis.

FREN 303 Translation: English to French (3) Prerequisite: FREN301 or equivalent. Practicum in translation primarily from English to French; contrastive analysis.

FREN 306 Commercial French I (3) Prerequisite: FREN301 or equivalent. Introduction to commercial French including correspondence and business terminology. Emphasis on cross-cultural concepts needed for successful interaction within business settings. In French.

FREN 311 Advanced Oral Expression (3) Not open to fluent/native speakers of French. Prerequisite: FREN250 or equivalent. Recommended: FREN211. Linguistic and thematic analysis of written, audio, and visual texts. Focus on aural and oral skills. Some written assignments and evaluation.

FREN 312 France Today (3) Not open to native/fluent speakers of French. Prerequisite: FREN301 or equivalent. Analysis and discussion of current events and institutions using various French media resources.

FREN 351 From Romanticism to the Age of Modernism and Beyond (3) Prerequisite: FREN301 or equivalent. A survey of the chief authors and major movements of French literature from Pre-Romanticism to the present.

FREN 352 From the Age of Epic and Romance to the Enlightenment (3) Prerequisite: FREN301 or equivalent. A survey of the chief authors and major movements of French literature from the Middle Ages to the end of the 18th century.

FREN 386 Experiential Learning (3-6) Prerequisite: permission of department. Junior standing.

FREN 388 Language House Colloquium (1) Prerequisite: Residence in Language House. Repeatable to 4 credits. The Language House Colloquium is a one-credit course for students residing in the Language House Immersion Program. The course focuses on the further development of skills in the target language and the acquiring of cultural knowledge of the countries that speak the target language. The course is designed to supplement the learning that takes place on a daily basis in the Language House program.

FREN 399 Directed Study in French (1-3) Prerequisite: permission of department. Repeatable to 3 credits. Advanced undergraduates develop syllabus, reading list, and course requirements with interested faculty member. Designed for in-depth study of material not offered in regular courses or as expansion of course material. To be planned during semester preceding registration.

FREN 400 Applied Linguistics (3) The nature of applied linguistics and its contribution to the effective teaching of foreign languages. Comparative study of English and French, with emphasis upon points of divergence.

FREN 401 Writing with Style (3) Prerequisite: FREN301 or permission of department. Advanced composition and stylistic analysis.

FREN 404 Issues in the French-Speaking World Today (3) Prerequisite: FREN311 or FREN 312 or permission of department. A sociocultural and historical approach to relevant issues affecting contemporary French civilization. Press articles and television programs will be the basis for classroom cultural analysis and oral communication.

FREN 406 Commercial French II (3) Prerequisite: FREN306 or permission of department. Advanced study of commercial French language--terminology and style--leading to preparation for the Paris Chamber of Commerce Examination.

FREN 407 History of the French Language (3) Prerequisite: FREN351 or FREN352 or equivalent. Evolution of the French language from Latin to modern French. Conducted in French.

FREN 429 Studies in French Literature and Culture of the Renaissance (3) Prerequisite: FREN351 or FREN352 or equivalent. Repeatable to 6 credits if content differs. Selected topics in French literature of the Renaissance.

FREN 439 Studies in 17th Century French Literature and Culture (3) Prerequisite: FREN351 or FREN352 or equivalent. Repeatable to 6 credits if content differs. Selected topics in seventeenth-century French literature.

FREN 449 Studies in 18th Century French Literature and Culture (3) Prerequisite: FREN351 or FREN352 or equivalent. Repeatable to 6 credits if content differs. Selected topics in eighteenth-century French literature.

FREN 459 Studies in 19th Century French Literature and Culture (3) Prerequisite: FREN351 or FREN352 or equivalent. Repeatable to 6 credits if content differs. Selected topics in nineteenth-century French literature.

FREN 469 Studies in 20th Century French Literature and Culture (3) Prerequisite: FREN351 or FREN352 or equivalent. Repeatable to 6 credits if content differs. Selected topics in twentieth-century French literature.

FREN 471 The Construction of French Identity I: From the Origins to the (3) Age of Versailles French life, customs, culture, traditions (800-1750).

FREN 472 The Construction of French Identity II: From the Revolution to (3) the Early Twentieth Century French life, customs, culture, traditions (1750 to the early twentieth century).

FREN 473 The Construction of French Identity III: Cross-Cultural Approaches (3) to the Study of Contemporary French Society Patterns of communication, mythology, and ideology in modern France, from the Third Republic to the present, through historical and cross-cultural approaches, with reference to the Francophone world.

FREN 474 Contemporary France: A Sociocritical Approach (3) Recommended: FREN473. A sociocritical approach to understanding modern French society through the study of print and non-print media documents (autobiography, film, and paraliterature), with reference to the Francophone world.

FREN 478 Themes and Movements of French Literature in Translation (3) Studies treatments of thematic problems or literary or historical movements in French literature. Topic to be determined each semester. Taught in English.

FREN 479 Masterworks of French Literature in Translation (3) Treats the works of one or more major French writers. Topic to be determined each semester. Taught in English.

FREN 480 French Cinema: A Cultural Approach (in Translation) (3) Formerly FREN475. A study of French culture, civilization, and literature through the medium of film. Taught in English.

FREN 481 Femmes Fatales and the Representation of Violence in Literature, (3) Opera and Film (in English) The problem of violence in art with respect to women and marginal populations. Taught in English.

FREN 482 Gender and Ethnicity in Modern French Literature (3) Literature by women writers of France and other French speaking areas with a focus on the relationship between gender, ethnicity and writing. Taught in English.

FREN 488 Special Topics in Francophone Studies (3) Repeatable to 9 credits if content differs. Topic and language of instruction to be announced when offered.

FREN 489 Seminar in Themes or Movements of French Literature (3) Prerequisite: FREN351 or FREN352 or equivalent. Repeatable to 6 credits if content differs.

FREN 495 Honors Thesis Research (3) Open only to students admitted to the departmental honors program. The writing of a paper under the direction of a professor in this department and an oral examination. Required to fulfill the departmental honors requirement.

FREN 498 Special Topics in French Literature (3) Prerequisite: FREN351 or FREN352 or equivalent. Repeatable to 6 credits if content differs.

FREN 499 Special Topics in French Studies (3) Repeatable to 6 credits if content differs. An aspect of French studies, the specific topic to be announced each time the course is offered.

GEMS -- Gemstone

GEMS 100 Freshman Honors Colloquium: Introduction to Gemstone (1) Restricted to first time freshman admitted to the Gemstone Program. Orienting new Gemstone students to the university and to the program through a variety of team building activities, resources, and skill exploration exercises. Students will also examine and discuss areas such as liberal education, diversity, service, arts, current events, academic integrity, and leadership style.

GEMS 102 Research Topic Exploration and Team Formation (1) Restricted to Gemstone students only. Under the guidance of staff and visiting speakers, students will develop research topics that they will pursue for the remainder of their participation in the Gemstone program, and form into interdisciplinary teams around these topics.

GEMS 104 Topics in Science, Technology and Society (STS) (3) Prerequisite: GEMS100. Corequisite: GEMS102 Restricted to Gemstone students only. An examination of how cultural, economic, political and social forces shape scientific and technological systems and, conversely, how scientific and technological systems have affected the culture, economies, organization and politics of societies. Students in the course will form small teams to carry out semester-long research on socio/technical topics related to the course theme chosen for that specific semester.

GEMS 202 Team Dynamics and Research Methodology (2) Prerequisite: GEMS100, GEM 102 and GEM 104. Corequisite: GEM 296 Restricted to Gemstone students only. Sophomore standing. This experiential course is designed to foster an understanding of effective team dynamics and basic research methodology. It will teach skills applicable to Gemstone team research and the writing of a team thesis. Upperclass Gemstone students serve as discussion facilitators. Students participate in their Gemstone teams and develop a draft of their team thesis proposal.

GEMS 208 Special Topics in Leadership and Team Development (1-3) Restricted to Gemstone students only.

Principles, methods and types of leadership and team development with an emphasis on group discussion and decision making. Reading, discussion and exploration of the basic team concept, communications for winning scenarios, goal setting, problem solving, conflict resolution and research methods.

GEMS 296 Team Project Seminar I (1) Prerequisite: GEMS100, GEMS102 and GEMS104. Corequisite: GEMS202. For Gemstone students with sophomore standing in a research team. This is the first of six seminars during which Gemstone students carry out multidisciplinary research with the guidance of a faculty mentor. The teams develop their working relationship, start their literature search, define their research question, and set short & long term goals.

GEMS 297 Team Project Seminar II (2-3) Prerequisite: For Gemstone students with sophomore standing in a research team. This is the second of six seminars during which Gemstone students carry out interdisciplinary research with the guidance of a faculty mentor. The team develops its website, prepares and presents its research proposal.

GEMS 308 Selected Topics (3) For Gemstone students only. Sophomore standing. Gemstone winter course (study abroad) will allow individuals and research teams to focus on the three dimensions of transformation as related to traditional societies and technology; (a) changing patterns of social need and technology; (b) cultural antecedents and its transformative effects on traditions; and (c) social traditions that hinder and/or enhance technological innovations.

GEMS 396 Team Project Seminar III (2) Prerequisite: GEMS297. For Gemstone students with junior standing in a research team. This is the third of six seminars during which Gemstone students carry out interdisciplinary research with the guidance of a faculty mentor. The team presents its progress at the Gemstone Colloquia.

GEMS 397 Team Project Seminar IV (2) Prerequisite: GEMS396; For Gemstone students with junior standing in a research team. This is the fourth of six seminars during which Gemstone students carry out interdisciplinary research with the guidance of a faculty mentor. The team further develops its website. Also they will prepare and present the team project in the poster session of Undergraduate Research Day.

GEMS 496 Project Writing Seminar (2) Prerequisite: GEMS397. For Gemstone participants only. This is the fifth of six seminars during which Gemstone students carry out research with the guidance of a faculty mentor. The team finishes the analysis of their data and writes and edits its team thesis.

GEMS 497 Team Thesis Defense (2) Prerequisite: GEMS496. For Gemstone participants only. Gemstone teams will complete the team research project and thesis. The team will formally present the thesis to experts in the area of interest at a Team Thesis Conference before final submission.

GEOG -- Geography

GEOG 100 Introduction to Geography (3) An introduction to the broad field of geography as it is applicable to the general education student. The course presents the basic rationale of variations in human occupancy of the earth and stresses geographic concepts relevant to understanding world, regional and local issues.

GEOG 123 Causes and Implications of Global Change (3) Also offered as AOSC123 and GEOL123. Credit will be granted for only one of the following: AOSC123, GEOG123, GEOL123, or METO123. A unique experience in integrating physical, chemical, geological, and biological sciences with geographical, economic, sociological, and political knowledge skills toward a better understanding of global change. Review of environmental science relating to weather and climate change, acid precipitation, ozone holes, global warming, and impacts on biology, agriculture, and human behavior. Study of the natural, long- term variability of the global environment, and what influence mankind may have in perturbing it from its natural evolution. Concepts of how physical, biological, and human behavioral systems interact, and the repercussions which may follow human endeavors. The manner in which to approach decision and policy making related to global change.

GEOG 130 Developing Countries (3) An introduction to the geographic characteristics of the development problems and prospects of developing countries. Spatial distribution of poverty, employment, migration and urban growth, agricultural productivity, rural development, policies and international trade. Portraits of selected developing countries.

GEOG 140 Coastal Environments (3) Introduction to coastal environments, with emphasis on U.S. East Coast. Physical and ecological systems, beach processes, waves, currents, human impacts, coastal zone management and shoreline engineering. Case studies of coastal areas, including Ocean City, Maryland.

GEOG 170 Maps and Map Use (3) An exploration of ways in which maps are produced, including how data are gathered using remote sensing, how data are analyzed in geographic information systems, and how data are presented in cartographic form. Development of skills in map reading, data interpretation and analysis, environmental analysis, and user-oriented presentations.

GEOG 201 Geography of Environmental Systems (3) CORE Distributive Studies Physical Science Laboratory Course only when taken concurrently with GEOG 211. A systematic introduction to the processes and associated forms of the atmosphere and earth's surfaces emphasizing the interaction between climatology, hydrology and geomorphology.

GEOG 202 Introduction to Human Geography (3) Introduction to what geographers do and how they do it. Systematic study of issues regarding social and cultural systems from a global to a local scale. Looks at the distribution of these variables and answers the question "Why here, and not there"?

GEOG 211 Geography of Environmental Systems Laboratory (1) Two hours of laboratory per week. CORE Distributive Studies Physical Science Laboratory Course only when taken concurrently with GEOG 201. Pre- or corequisite: GEOG201 or GEOL100 or GEOL120. A laboratory course to accompany GEOG 201. Analysis of the components of the earth's energy balance using basic instrumentation; weather map interpretation; soil analysis; the application of map and air photo interpretation techniques to landform analysis.

GEOG 212 Introduction to Human Geography Laboratory (1) Two hours of laboratory per week. Pre- or corequisite: GEOG202. For GEOG majors only. Introduction to the basic methods and techniques employed in human geography.

GEOG 305 Quantitative Methods in Geography (3) Credit will be granted for only one of the following: BIOM301, BMGT230, ECON321, EDMS451, GEOG305, GVPT422, PSYC200, or SOCY201. A practical introduction to data sources and measurement, descriptive statistics, data collection, sampling and questionnaire design, field techniques, map use, computer use and data presentation.

GEOG 306 Introduction to Quantitative Methods for the Geographic Environment Sciences (3) Also offered as GEOG398Q. Credit will be granted for only one of the following: GEOG398Q or GEOG306. Formerly GEOG398Q. Essentials in the quantitative analysis of spatial and other data, with a particular emphasis on statistics and programming. Topics include data display, data description and summary, statistical inference and significance tests, analysis of variance, correlation, regression, and some advanced concepts, such as matrix methods, principal component analysis, and spatial statistics. Students will develop expertise in data analysis using advanced statistical software.

GEOG 310 Maryland and Adjacent Areas (3) Credit will be granted for only one of the following: GEOG310 or GEOG321. Formerly GEOG321. The physical environment, natural resources, and population in relation to agriculture, industry, transport, and trade in the State of Maryland and adjacent areas.

GEOG 312 The United States and Canada (3) Credit will be granted for only one of the following: GEOG312 or GEOG320. Formerly GEOG320. The two countries as functioning geographic systems with important differences and key linkages. An examination of the cultural, environmental, and economic components and their spatial variation. Attention to the role of regions in national economies.

GEOG 313 Latin America (3) Credit will be granted for only one of the following: GEOG313 or GEOG323. Formerly GEOG323. A geography of Latin America and the Caribbean in the contemporary world: political and cultural regions, population and resource distribution, historical development, current levels of economic and social well-being, urbanization, development policies, migration trends, physical features and climates.

GEOG 328 Topics in Regional Geography (3) Repeatable to 6 credits if content differs. Selected topics in regional geography.

GEOG 330 Cultural Geography (3) Prerequisite: GEOG201, GEOG202, ANTH220, or ANTH260; or permission of department. Credit will be granted for only one of the following: GEOG330, GEOG360, or GEOG362. Formerly GEOG362. Impact of humans through ideas and technology on the evolution of geographic landscapes. Major themes in the relationships between cultures and environments.

GEOG 331 Introduction to Human Dimensions of Global Change (3) Prerequisites: GEOG201, GEOG202, ANTH220, or ANTH260; or permission of department. Credit will be granted for only one of the following: GEOG331 or GEOG361. Formerly GEOG361. Introduction to global-scale interrelationship between human beings and the environment. The development of global issues including but not limited to the environment, food, energy, technology, population, and policy.

GEOG 332 Economic Geography (3) Credit will be granted for only one of the following: GEOG203, GEOG303, or GEOG332. Formerly GEOG303. Principles of managing scarce resources in a world where everyone faces tradeoffs across both time and space. Focuses on the relationship between globalization processes and changing patterns of locational advantages, production, trade, population, socioeconomic and environmental grace and sustainability.

GEOG 334 The American City: Past and Present (3) Credit will be granted for only one of the following: GEOG334 or GEOG350. Formerly GEOG350. Development of the American city from the early 19th century to the present. The internal structure of contemporary metropolitan areas, the spatial arrangement of residential, commercial, and other activities. Washington, D.C. and Baltimore examples.

GEOG 340 Geomorphology (3) Survey of landform types and role of processes in their generation. Frequency of occurrence and implications for land utilization. Emphasis on coastal, fluvial, and glacial landforms in different environmental settings. Landform regions of Maryland.

GEOG 342 Introduction to Biogeography (3) Prerequisite: GEOG201. Recommended: GEOG211. Credit will be granted for only one of the following: GEOG342 or GEOG347. Formerly GEOG347. The principles of biogeography, including the patterns, processes and distributions of living organisms from local to global scales, aspects of ecophysiology, population and community ecology and evolutionary biology. Spatial processes in the biosphere will be covered.

GEOG 345 Introduction to Climatology (3) The geographic aspects of climate with emphasis on energy-moisture budgets, steady-state and non steady-state climatology, and climatic variations at both macro-and micro-scales.

GEOG 346 Cycles in the Earth System (3) Prerequisite: MATH140, AOSC/GEOG/GEOL123, or permission of department. Recommended: MATH141, PHYS141, PHYS161, or PHYS171. Also offered as AOSC346 and GEOL346. Credit will be granted for only one of the following: AOSC346, GEOG346, or GEOL346. The Earth System operates through some fundamental cycles such as water, energy, and the Carbon Cycle. This course will build on GEOL/GEOG/AOSC123 starting with concept of feedbacks within the Earth System, global energy balance and the Greenhouse Effect. A brief introduction to the atmospheric and oceanic circulation will lead to the water cycle connecting the land, ocean, and atmosphere to the Earth System. Introduction to the Global carbon, nitrogen, and sulfur cycles will be followed by the concept of long-term climate regulation and short-term climate variability. The concepts of cycles, feedbacks, forcings, and responses in the Earth System will be applied to Global Warming and Ozone Depletion.

GEOG 372 Remote Sensing (3) Principles of remote sensing in relation to photographic, thermal infrared and radar imaging. Methods of obtaining quantitative information from remotely-sensed images. Interpretation of remotely-sensed images emphasizing the study of spatial and environmental relationships.

GEOG 373 Geographic Information Systems (3) Two hours of lecture and two hours of laboratory per week. Characteristics and organization of geographic data; creation and use of digital geospatial databases; metadata; spatial data models for thematic mapping and map analysis; use of geographic information system in society, government, and business. Practical training with use of advanced software and geographic databases.

GEOG 375 Introduction to Computer Cartography (3) Credit will be granted for only one of the following: GEOG370, GEOG371, or GEOG375. Formerly GEOG371. Principles of cartographic database, earth-map relations, map design, symbolization and color usage. Practical skills of making different thematic maps using simple software packages.

GEOG 384 Internship in Geography I (3) Only GEOG384 will count toward the major requirement. Prerequisite: GEOG201/211, GEOG212, GEOG306 and (ENGL391 or ENGL393). For GEOG majors only. Supervised field training to provide career experience. Introduction to professional level activities, demands, opportunities. Placement at a public agency, non-profit organization, or private firm. Participation requires application to the internship advisor in preceding semester.

GEOG 385 Internship in Geography II (3) Only GEOG384 will count toward the major requirement. GEOG385 will count toward university requirements. Prerequisite: GEOG201, GEOG211, GEOG212, GEOG306 and Junior English. For GEOG majors only. Supervised field training to provide career experience. Introduction to professional-level activities, demands, opportunities. Placement at a public agency, nonprofit organization, or private firm. Participation requires application to the internship advisor in preceding semester.

GEOG 396 Honors Research (3) Prerequisite: permission of department. Senior standing. For GEOG majors only. Formerly GEOG397. First course in the departmental honors sequence. Student development of a potential research topic under the guidance of a faculty advisor, culminating in a written and oral presentation of a research proposal.

GEOG 397 Honors Thesis (3) Prerequisite: GEOG396. Senior standing. For GEOG majors only. Formerly GEOG399. Second course in the departmental honors sequence. Student research under the auspices of a faculty advisor, culminating in a research paper to be defended orally before the geography honors committee.

GEOG 398 Special Topics in Geography (3) Prerequisite: permission of department. Repeatable to 6 credits if content differs. Credit will be granted for only one of the following: GEOG298 or GEOG398. Formerly GEOG298. An introductory course dealing with special topics in geography.

GEOG 410 Washington, D.C.: Past and Present (3) Credit will be granted for only one of the following: GEOG410 or GEOG454. Formerly GEOG454. Development of the Washington, D.C. area from its origin as the Federal Capital to its role as a major metropolitan area. The geographic setting, the L'Enfant Plan and its modification, the federal government role, residential and commercial structure. The growth of Washington's suburbs.

GEOG 415 Land Use, Climate Change, and Sustainability (3) Prerequisite: GEOG123, GEOG306, or permission of department. Recommended: GEOG201/211, GEOG340, GEOG342, or GEOG331. Credit will be granted for only one of the following: GEOG415 or GEOG498D. Formerly GEOG498D. The issues of climate change and land use change as two interlinked global and regional environmental issues and their implications for society and resource use are explored.

GEOG 418 Field and Laboratory Techniques in Environmental Science (1-3) Prerequisite: permission of department. Credit will be granted for only one of the following: GEOG418 or GEOG448. Formerly GEOG448. Lecture and laboratory learning each week. A variable credit course that introduces field and laboratory analyses in environmental science. Individual learning contract are developed with instructor.

GEOG 431 Culture and Natural Resource Management (3) Credit will be granted for only one of the following: GEOG421 or GEOG431. Formerly GEOG421. Basic issues concerning the natural history of humans from the perspective of the geographer. Basic components of selected behavioral and natural systems, their evolution and adaptation, and survival strategies.

GEOG 432 Location Theory and Spatial Analysis (3) Credit will be granted for only one of the following: GEOG430 or GEOG432. Formerly GEOG430. Theories and procedures for determining the optimal location of industrial, commercial and public facilities. Techniques to evaluate location decisions. The provision of services with regions and metropolitan areas. Emerging trends.

GEOG 433 Transportation Networks (3) The theory and practice of analyzing transportation networks, including modes, links, routes, flows and regions. Examples drawn from different transportation modes.

GEOG 434 The Contemporary City (3) Credit will be granted for only one of the following: GEOG434 or GEOG450. Formerly GEOG450. The contemporary urban system: towns, cities and metropolitan areas and their role as concentrations of social and economic activity. Patterns of land-use: residential, employment, commercial activity, manufacturing, and transportation. Explanatory and descriptive models. International comparisons.

GEOG 435 Population Geography (3) Credit will be granted for only one of the following: GEOG422 or GEOG435. Formerly GEOG422. The spatial characteristics of population distribution and growth, migration, fertility and mortality from a global perspective. Basic population-environmental relationships; carrying capacity, density, relationships to national development.

GEOG 437 Political Geography (3) Credit will be granted for only one of the following: GEOG423 or GEOG437. Formerly GEOG423. Geographical factors in the national power and international relations; an analysis of the role of geopolitics and geostrategy, with special reference to the current world scene.

GEOG 438 Seminar in Human Geography (3) Prerequisite: permission of department. Repeatable to 6 credits if content differs. Selected topics in human geography.

GEOG 440 Advanced Geomorphology (3) Prerequisite: GEOG340 or GEOL340 or permission of department. Credit will be granted for only one of the following: GEOG440 or GEOG441. Formerly GEOG441. A quantitative investigation of the fundamental geomorphic processes shaping modern landscapes, with emphasis on coastal, fluvial or glacial processes. Discussion of historical environments. Field, instrumentation and laboratory analyses.

GEOG 441 The Coastal Ocean (3) Prerequisite: GEOG140 or equivalent; or permission of department. Recommended: GEOG201 and GEOG211. Credit will be granted for only one of the following: GEOG441 or GEOG498C. Formerly GEOG498C. Introduction to coastal oceanography, focusing on the physical, biological, and geological aspects of ocean areqs on the inner continental shelves. Wave, currents, and tidal dynamics of bays, open coast, estuaries, and deltas. Sedimentary environments of major coastal types. Ecology and biogeochemical relationships, including benthic and planktonic characteristics. Coastal evolution with sea level rise. Human impacts: eutrophication, modification of sedimentation. The coastal future: rising sea level, hypoxia, and increased storminess.

GEOG 442 Biogeography and Environmental Change (3) Prerequisite: GEOG342 or equivalent. Recommended: GEOG123. Credit will be granted for only one of the following: GEOG442, GEOG447, or GEOG484. Formerly GEOG447. Biogeographical topics of global significance, including a consideration of measurement techniques, and both descriptive and mechanistic modeling. Topics may include: scale in biogeography, climate and vegetation, global carbon cycle, biodiversity, interannual variability in the biosphere, land cover, global biospheric responses to climate change, NASA's Mission to Planet Earth and Earth Observation System.

GEOG 445 Climatology (3) Prerequisite: GEOG345. Credit will be granted for only one of the following: GEOG445 or GEOG446. Formerly GEOG446. Quantitative investigations into the Earth's radiation balance, water cycle, and the interrelationship of climate and vegetation. Methodologies in climate research. Case studies related to global climatic change.

GEOG 446 Applied Climatology (3) Prerequisite: GEOG345 or permission of department. Components of earth's radiation balance and energy budgets: radiation, soil heat flux and the evaporation process. Measurement and estimation techniques. Practical applications of microclimatological theory and techniques.

GEOG 456 The Social Geography of Metropolitan Areas in Global Perspective (3) A socio-spatial approach to human interaction within the urban environments: ways people perceive, define, behave in, and structure world cities and metropolitan areas. Cultural and social differences define spatial patterns of social activities which further define distinctions in distribution and interaction of people and their social institutions.

GEOG 472 Remote Sensing: Digital Processing and Analysis (3) Prerequisite: GEOG306, GEOG372 or equivalent. Credit will be granted for only one of the following: GEOG472 or GEOG480. Formerly GEOG480. Digital image processing and analysis applied to satellite and aircraft land remote sensing data. Consideration is given to preprocessing steps including calibration and geo registration. Analysis methods include digital image exploration, feature extraction thematic classification, change detection, and biophysical characterization. One or more application examples may be reviewed.

GEOG 473 Geographic Information Systems and Spatial Analysis (3) Two hours of lecture and two hours of laboratory per week. Prerequisite: GEOG306 and GEOG373. Credit will be granted for only one of the following: GEOG473 or GEOG482. Formerly GEOG482. Analytical uses of geographic information systems; data models for building geographic data bases; types of geographic data and spatial problems; practical experience using advanced software for thematic domains such as terrain analysis, land suitability modeling, demographic analysis, and transportation studies.

GEOG 475 Computer Cartography (3) Prerequisite: GEOG306 and GEOG373. Credit will be granted for only one of the following: GEOG471 or GEOG475. Formerly GEOG471. Advanced skills of computer mapping using more sophisticated software packages. Map projection evaluation and selection, coordinate system conversion, techniques of quantitative thematic mapping, map design and generalization, hypermedia and animated cartography. Emphasis on designing and making cartographically sound sophisticated thematic maps.

GEOG 476 Programming for Geographers (3) Prerequisite: GEOG306, GEOG373 or equivalent. Credit will be granted for only one of the following: GEOG498G or GEOG476. Formerly GEOG498G. An introduction to programming for geography. Introduces the concepts of computer programming as applied to Geography. Implementation language is Visual Basic.

GEOG 496 NASA Academy (4) Two hours of lecture and four hours of laboratory per week. Prerequisite: College Permission. Junior standing. Also offered as CMPS496 and ENES496. Credit will be granted for only one of the following: CMPS496, GEOG496 or ENES496. A ten-week resident summer institute at Goddard Space Flight Center for juniors, seniors and first-year graduate students interested in pursuing professional and leadership careers in aerospace-related fields. The national program includes research in a Goddard laboratory, field trips to NASA centers, and a combination of lectures and workshops on the mission, current activities and management of NASA. Students interested in the Academy will find information at http://nasa-academy.nasa.gov Application should be made by the end of January; sponsorship by an affiliated State Space Grant Consortium is customary, but not required.

GEOG 498 Topical Investigations (1-3) Restricted to advanced undergraduate students with credit for at least 24 hours in geography and to graduate students. Any exceptions should have approval of department. Repeatable to 6 credits if content differs. Independent study under individual guidance.

GEOL -- Geology

GEOL 100 Physical Geology (3) CORE Distributive Studies Physical Science Laboratory Course only when taken concurrently with GEOL 110. Credit will be granted for only one of the following: GEOL100 or GEOL120. A general survey of the rocks and minerals composing the earth, its surface features and the agents that form them, and the dynamic forces of plate tectonics.

GEOL 102 Historical Geology (4) Three hours of lecture and three hours of laboratory per week. Prerequisite: GEOL100 or GEOL120, and GEOL110 or permission of department. Earth's history as revealed through the principles of stratigraphy and the processes of physical geology. Emphasis on formations and geologic development of the North American continent.

GEOL 104 Dinosaurs: A Natural History (3) Dinosaurs, their evolution, and our understanding of their fossil record. Students will examine the geologic record and the tools used by paleontologists to determine: geologic ages and ancient environments; evolutionary history and extinctions; dinosarian biology and behavior; and their survival as birds. Mechanisms of global change ranging from plate tectonics to asteroid impact will be discussed.

GEOL 110 Physical Geology Laboratory (1) Three hours of laboratory per week. CORE Distributive Studies Physical Science Laboratory Course only when taken concurrently with GEOL 100. Pre- or corequisite: GEOL100 or GEOL120. The basic materials and tools of physical geology stressing familiarization with rocks and minerals and the use of maps in geologic interpretations.

GEOL 120 Environmental Geology (3) Credit will be granted for only one of the following: GEOL100 or GEOL120. A review of geologic factors underlying many environmental problems and the interactions between population and physical environment: geologic hazards, land-use planning, conservation, mineral resources, waste disposal, land reclamation, and the geologic aspects of health and disease. The course is aimed at lower division students in education and liberal arts, and should be useful to any student concerned with geologic perspectives of environmental problems.

GEOL 123 Causes and Implications of Global Change (3) Also offered as AOSC123 and GEOG123. Credit will be granted for only one of the following: AOSC123, GEOG123, GEOL123, or METO123. This course offers a unique experience in integrating physical, chemical, geologic, and biological sciences with geographical, economic, sociological and political knowledge skills toward a better understanding of global change. Review of environmental science relating to weather and climate change, acid precipitation, ozone holes, global warming, and impacts on biology, agriculture, and human behavior. Study of the natural, long-term variability of the global environment, and what influence mankind may have in perturbing it from its natural evolution. Concepts of how physical, biological, and human behavioral systems interact, and the repercussions which may follow from human endeavors. The manner in which to approach decision and policy making related to issues of global change.

GEOL 124 Biogenesis: Making a Habitable Planet (3) Three hours of lecture and one hour of discussion/recitation per week. An exploration of how life has shaped Earth's physical environments, both in the contemporary Earth and over the long course of Earth history. Topics range from evidence for the origin and diversification of life and its impact on Earth environments to the mind-set and methods of the scientists who interpret it, and what those methods tell us about future interactions between life and the environment, both on Earth and in the Solar System.

GEOL 210 Gems and Gemstones (3) A survey of the origin, occurrences, properties, fashioning, and treatments of natural and synthetic materials, with emphasis on diamonds and colored stones.

GEOL 212 Planetary Geology (3) An examination of the geologic and geochemical processes at work in the solar system from the perspectives supplied by space age exploration of the planets and other solar system bodies.

GEOL 214 Global Energy Systems and Resources (3) Prerequisite: A course in the natural sciences, environmental policy, geography, or permission of the instructor. Possible courses include:CPSP123, ENSP101, ENSP102, GEOG100, GEOG201, GEOL100, GEOL120, MATH140, or PHYS117, {CHEM131 and CHEM132}, {CHEM135 and CHEM136}, or CHEM103. Focuses on energy systems and resources on a global scale. It addresses energy transfer in natural systems, distribution of energy resources in the natural world, and problems of efficiency and limited energy resources. It is appropriate for those interested in science and technical energy issues as well as policy, education and the media.

GEOL 288 Field Studies I (1) Repeatable to 3 credits if content differs. Examination and investigation of Earth Science phenomena in the field, particularly geology. Involves fieldwork of one week or longer duration, which work normally includes both observation and data collection. Particular programs may require certain prerequisites. Permission of Instructor is required. Special fees may be necessary.

GEOL 310 Forensic Geology and Homeland Security (3) Prerequisite: MATH110, CHEM131, and GEOL100; or permission of department. An introduction to the fundamentals of forensic science with special reference to the application of geological techniques, and to the applications of Earth science in understanding problems in homeland security and hazardous materials response.

GEOL 322 Mineralogy (4) Three hours of lecture and three hours of laboratory per week. Prerequisites: GEOL100 or GEOL120, GEOL110; and one of the following: {CHEM131 and CHEM132}, {CHEM135 and CHEM136}; or CHEM103. Basic mineralogy for geology majors. The principles of morphologic crystallography, crystal chemistry, and determinative mineralogy.

GEOL 329 Instructional Assistance Practicum (1-2) Three hours of lecture and one hour of discussion/recitation per week. Does not count as fulfilling any requirement for the Geology Major Professional Track or Geology Major Secondary Education Track. Prerequisite: permission of department. Undergraduate teaching assistantship in Geosciences. Individual instruction course. Contact department or instructor to obtain section number.

GEOL 331 Principles of Paleontology (4) Three hours of lecture and three hours of laboratory per week. Prerequisites: GEOL100 or GEOL120, GEOL110, and GEOL102; or permission of department. A review of the theory, principles, and applications of Paleontology. A systematic overview of the morphology, evolution, and relationships of the major fossil-producing taxa.

GEOL 340 Geomorphology (4) Three hours of lecture and three hours of laboratory per week. Two Saturday field trips. Prerequisite: GEOL100 or GEOL120. Analysis of landforms, organized on the basis of the geologic processes that have operated during the late Cenozoic. Constructional and erosional landforms related to physical systems operating on geologic structures through time.

GEOL 341 Structural Geology (4) Three hours of lecture and three hours of laboratory per week. Prerequisite: GEOL100 or GEOL120, GEOL110, and GEOL102; or permission of department. Study of the deformation of Earth's lithosphere, especially stress, rheology, strain, and the origin and significance of structural features. Development of 3-dimensional thinking through drafting and drawing of structures, construction of geologic maps and cross-sections, and stereographic and orthographic representation of structures. Improvement of scientific writing. Two weekend field trips.

GEOL 342 Sedimentation and Stratigraphy (4) Three hours of lecture and three hours of laboratory per week. Prerequisite: GEOL100 or GEOL120; GEOL110; and GEOL322; and one of the following: CHEM103, {CHEM131 and CHEM132} or {CHEM135 and CHEM136}. Description, origin, and distribution of sediments and sedimentary rocks. Two mandatory weekend field trips.

GEOL 346 Cycles in the Earth System (3) Prerequisite: MATH140, AOSC/GEOG/GEOL123, or permission of department. Recommended: MATH141, PHYS141, PHYS171, or PHYS161. Also offered as AOSC346, GEOG346. Credit will be granted for only one of the following: AOSC346, GEOG346, or GEOL346. The Earth System operates through some fundamental cycles such as water, energy, and the Carbon Cycle. This course will build on GEOL/GEOG/AOSC123 starting with concept of feedbacks within the Earth System, global energy balance and the Greenhouse Effect. A brief introduction to the atmospheric and oceanic circulation will lead to the water cycle connecting the land, ocean, and atmosphere to the Earth System. Introduction to the Global carbon, nitrogen, and sulfur cycles will be followed by the concept of long-term climate regulation and short-term climate variability. The concepts of cycles, feedbacks, forcings, and responses in the Earth System will be applied to Global Warming and Ozone Depletion.

GEOL 375 Introduction to the Blue Ocean (3) Prerequisite: MATH140. Recommended: MATH141, PHYS161, or

PHYS171. Also offered as AOSC375. Credit will be granted for only one of the following: AOSC375, GEOL375, or METO375. Introduction to physical, chemical, and biological properties of the ocean. Role of the ocean in climate as a component of the Earth system. El Nino and the ocean, impact of global warming on the ocean and marine habitats including fisheries.

GEOL 386 Experiential Learning (3-6) Prerequisite: permission of department. Junior standing.

GEOL 388 Field Studies II (3) Repeatable to 6 credits if content differs. Examination and investigation of Earth Science phenomena in the field, particularly geology. Involves field work of one week or a longer duration, which would normally involve both observations and data collection, with associated classroom lectures and/or laboratory study, normally including additional analysis of collected observations and data. Particular programs may require certain prerequisites. Permission of instructor required. Special fees may be necessary.

GEOL 393 Technical Writing for Geoscientists (3) Prerequisites: For GEOL majors only; minimum of Junior standing and at least 2 Upper Level GEOL courses with at least a third GEOL course concurrent. Planning, writing and presenting a plan for research in the geosciences.

GEOL 394 Research Problems in Geology (3) Prerequisite: For GEOL majors only; minimum of Junior standing, GEOL393 and at least 3 Upper Level GEOL courses. Investigation of a specific laboratory, library or field problem. Written and oral presentation of the study.

GEOL 410 Industrial Rocks and Minerals (3) Prerequisite: GEOL322. The origin; occurrence; mineralogy; extraction and treatment technology; production and deposit-evaluation of rocks and minerals used in the construction, ceramic, chemical and allied industries. Restricted to non-fuels, non-metallic, non-gem materials. Field trips to industrial locations are required.

GEOL 423 Optical Mineralogy (3) One hour of lecture and four hours of laboratory per week. Prerequisites: GEOL100 or GEOL120, GEOL110, GEOL322, and one of the following: {CHEM131 and CHEM132}, {CHEM135 and CHEM136}, or CHEM103. The optical behavior of crystals with emphasis on the theory and application of the petrographic microscope.

GEOL 436 Principles of Biogeochemistry (3) Three hours of lecture per week. Prerequisite: MATH140 or MATH220, GEOL100 or GEOL120, GEOL322, and one of the following: {CHEM131 and CHEM132}, {CHEM135 and CHEM136}, or CHEM103. An introduction to the basic principles of biogeochemistry including aspects of organic geochemistry, biochemistry, microbiology, global geochemical cycles, the origin of life and paleoenvironmental evolution.

GEOL 437 Global Climate Change: Past and Present (3) Prerequisite: MATH115 or MATH140; GEOL100 or GEOL120, and one of the following: {CHEM131 and CHEM132}, {CHEM135 and CHEM136}, or CHEM103. The goal of the course is to highlight the fact that global climate change is part of the Earth's past as well as of its present and future. Changes in climate that have occurred in the geologic past can be viewed as the Earth's natural climate variability. These changes are different from, though could be linked with, historical and present anthropogenically-induced climate change. We will discuss the modern climate system, the factors capable of forcing climate change on various time scales, the geologic proxies of past climate change and what these proxies tell us. Finally, we will compare and contrast past climate change with what is understood (and not understood) about modern climate change.

GEOL 443 Petrology (4) Two lectures and one laboratory per week. Prerequisites: GEOL100 or GEOL120, GEOL110, and GEOL322, and one of the following: {CHEM131 and CHEM132}, {CHEM135 and CHEM136}, or CHEM103. Corequisite: GEOL423 or permission of department. Study of igneous and metamorphic rocks: petrogenesis, distributions, chemical and mineralogical relations, macroscopic and microscopic descriptions, geologic significance.

GEOL 444 Low Temperature Geochemistry (4) Three hours of lecture and three hours of laboratory per week. Prerequisite: MATH115; GEOL100; GEOL322; and one of the following: CHEM103, {CHEM131 and CHEM132}, or {CHEM135 and CHEM136}. Basic chemical principles, thermodynamics, and kinetics of low-temperature inorganic and organic geochemical reactions in a wide range of surface environments. These geochemical tools will be used to provide a context for understanding elemental cycling and climate change. Laboratories will include problem sets as well as wet chemical and mass spectrometric techniques used in low temperature geochemistry.

GEOL 445 High Temperature Geochemistry (4) Three hours of lecture and three hours of laboratory per week. Prerequisite: MATH115; GEOL100; GEOL322; and one of the following: CHEM103, {CHEM131 and CHEM132}, or {CHEM135 and CHEM136}. Review of chemical principles and their use in understanding processes of Earth, and solar system formation and differentiation. Topics include nucleosynthesis and cosmochemical abundances of elements, bonding and element partitioning, equilibrium thermodynamics and phase stabilities, radiogenic isotopes and geochronology, kinetics, and diffusion.

GEOL 446 Geophysics (3) Prerequisite: MATH140, MATH141, and PHYS141. Introduction to solid earth geophysics, heat transfer, fluid flow, gravity, geomagnetism, rock and mineral physics, seismology, exploration geophysics. Basic knowledge of integral and differential calculus is required.

GEOL 451 Groundwater (3) Prerequisites: MATH140, GEOL100 or GEOL120, GEOL110 and one of the following: {CHEM131 and CHEM132}, {CHEM135 and CHEM136}, or CHEM103; or permission of department. Junior standing. An introduction to the basic geologic parameters associated with the hydrologic cycle. Problems in the accumulation, distribution, and movement of groundwater will be analyzed.

GEOL 452 Watershed and Wetland Hydrology (3) Prerequisite: permission of department. Junior standing. Physical processes by which water moves in watershed and wetland systems. Topics include: precipitation, infiltration, flow in the unsaturated zone, streamflow generation processes, and groundwater flow.

GEOL 455 Marine Geophysics (3) Prerequisite: GEOL100 or GEOL120, MATH140, MATH141; or permission of department. Credit will be granted for only one of the following: GEOL455 or GEOL489E. Formerly GEOL489E. Plate tectonics, earthquakes and faulting, isostasy and gravity, heat and mantle dynamics, ocean ridges and transform faults, hydrothermal vents, trenches and oceanic islands, subduction zones, accretionary and erosion wedges, sedimentary basins and continental rifts. Exploration of the oceans using geophysical methods.

GEOL 457 Seismology (3) Prerequisite: GEOL100 or GEOL120, GEOL110, MATH140, MATH141; or permission of department. Recommended: PHYS141, PHYS161, or PHYS171. Credit will be granted for only one of the following: GEOL457 or GEOL489A. Formerly GEOL489A. General overview of the basics of seismology, starting with wave propagation, seismic reflection and refraction. Applications to the determination of the seismic velocity and anisotropy structure of the Earth. Earthquake generation, postseismic deformation and creep events, relation to faulting and plate tectonics.

GEOL 462 Geological Remote Sensing (3) One lecture and two laboratories per week. Prerequisite: One of the following: GEOL100/110; GEOL120/110; or GEOL103. An introduction to geologic remote sensing including applications of aerial photographic interpretation to problems in regional geology, engineering geology, structural geology, and stratigraphy. Films, filters, and criteria used in selecting imagery are also discussed. Laboratory exercises include measurements of geologic parameters and compilation and transference of data to base maps.

GEOL 471 Geochemical Methods of Analysis (3) Prerequisite: One of the following: {CHEM131 and CHEM132}, {CHEM135 and CHEM136}, or CHEM103; and CHEM113. Principles and application of geochemical analysis as applied to a variety of geological problems. X-ray and optical spectroscopy, X-ray diffraction, atomic absorption, electron microprobe, and electron microscopy.

GEOL 472 Tectonics (3) Prerequisites: GEOL100 or GEOL120, GEOL110, GEOL102, and GEOL341; or permission of department. Study of the development of the lithosphere on Earth and other rocky planets and moons. Emphasis on student-led discussions. Improvement of scientific writing.

GEOL 489 Special Topics (3) Prerequisites: For GEOL majors only; minimum of Junior standing and a least 2 Upper Level GEOL courses with at least a third GEOL course and GEOL393 concurrent. Recent advances in geology.

GEOL 490 Geology Field Camp (6) Prerequisite: GEOL341 and GEOL443. Intense field geology course taught off campus during the summer. Students describe and compile maps of formations and structures from outcrops, subsurface, and remotely sensed data. Special fees required.

GEOL 491 Environmental Geology Field Camp (3-6) Prerequisites: GEOL341 and GEOL342 and GEOL451 or permission of department. Credit will be granted for only one of the following: GEOL490 or GEOL491. Intensive field course designed for students of environmental geology. Students will learn to make maps, to describe soil profiles and site characteristics, to monitor hydrologic and groundwater conditions, and to measure geologic structures and stratigraphic sections.

GEOL 499 Special Problems in Geology (1-3) Prerequisites: GEOL100 or GEO120, GEOL110, GEOL102; or equivalent; and permission of department. Intensive study of a special geologic subject or technique selected after consultation with instructor. Intended to provide training or instruction not available in other courses which will aid the student's development in his or her field of major interest.

GERM -- Germanic Studies

GERM 101 Elementary German I (4) One hour of laboratory and four hours of discussion/recitation per week. Formerly GERM111. Introduction to basic structures and pronunciation by emphasis on the four skills: listening, speaking, reading and writing. Readings concern the current lifestyle and civilization of the German-speaking world.

GERM 102 Elementary German II (4) One hour of laboratory and four hours of discussion/recitation per week. Prerequisite: GERM101 or equivalent. Formerly GERM112. A continuation of GERM 101, completing the introduction of basic structures and continuing the involvement with the civilization of the German-speaking world.

GERM 103 Intensive Elementary German (4) Not open to students who have completed GERM101, GERM102, more than two years of high school German, or to fluent/native speakers of German. Credit will be granted for only one of the following: GERM102 or GERM103. Covers speaking, reading, writing, listening, and culture of German-speaking world.

GERM 148 Germanic Languages - Elementary I (3) Repeatable to 6 credits if content differs. Basic instruction in a Germanic language other than German; Yiddish and Swedish are offered regularly, Danish, Netherlandic, and Norwegian when demand is sufficient. Subtitle will reflect the language. May be repeated in a different language.

GERM 149 Germanic Languages - Elementary II (3) Prerequisite: GERM148 in the same language. Continuation of GERM148. May be repeated in a different language. Subtitle will reflect the language.

GERM 201 Intermediate German I (4) One hour of laboratory and four hours of discussion/recitation per week. Prerequisite: GERM102. Grammar review and greater mastery of vocabulary, idioms, conversational fluency, and compositional skills. Readings stress the current lifestyle and civilization of the German-speaking world.

GERM 202 Intermediate German II (4) Four hours of lecture and one hour of laboratory per week. Prerequisite: GERM201. Continuation of GERM201. Grammar review and greater mastery of vocabulary, idioms, conversational fluency and compositional skills. Readings stress the current lifestyle and civilization of the German-speaking world.

GERM 203 Intensive Intermediate German (4) Prerequisite: GERM103 or equivalent. Not open to students who have completed GERM201, GERM202, four years of high school German, or to fluent/native speakers of German. Credit will be granted for only one of the following: GERM202 or GERM203. Covers speaking, reading, writing, listening, and culture of German-speaking world.

GERM 204 German Grammar Review (3) Three hours of lecture per week. Prerequisite: GERM203 or level 4 of high school German. Not open to fluent/native speakers. An in-depth study and analysis of selected grammatical topics in a contextualized framework.

GERM 248 Germanic Languages Intermediate - I (3) Prerequisite: GERM149 in the same language. Intermediate instruction in a Germanic language other than German. May be repeated in a different language. Subtitle will reflect the language.

GERM 249 Germanic Languages - Intermediate II (3) Prerequisite: GERM248 in the same language. Continuation of GERM248. May be repeated in a different language. Subtitle will reflect the language.

GERM 280 German-American Cultural Contrasts (3) A study of German-American culture in contemporary literature. Taught in English.

GERM 281 Women in German Literature and Society (3) Also offered as WMST281. Credit will be granted for only one of the following: GERM281 or WMST281. A study of changing literary images and social roles of women from the beginning of the 19th century to the present. Taught in English.

GERM 282 Germanic Mythology (3) An introduction to the religious beliefs of the pagan Germanic peoples. Comparison of Germanic myths with those of other Indo-European peoples. The conversion of the Germania to Christianity and the preservation of pagan beliefs in superstition and literature. Taught in English.

GERM 283 Viking Culture and Civilization (3) Formerly GERM383. An introduction to the lifestyle of northern Europe in the 9th to 11th centuries. Readings and instruction in English.

GERM 284 German Chivalric Culture (3) Formerly GERM384. An introduction to the lifestyle of northern Europe in the 12th to 14th centuries. Readings and instruction in English.

GERM 285 German Film and Literature (3) A visual approach to German literature through a study of the historical, cultural, and literary significance of German films. Representative examples from the golden age of German silent films to the new German cinema. Taught in English.

GERM 287 Ancient Celtic Culture and Civilization (3) Formerly GERM372. An introduction to the culture and civilization of the Ancient Celts; religion, arts, ethics and law of the continental and island Celts. Focus on the Ulster and Fenian cycles in Ireland; Taliesin, Aneirin and the Mabinogion in Wales. Reconstruction of the lifestyle of the period. Instruction and readings in English.

GERM 289 Selected Topics in the Cultures of the Germanic Speaking Countries (3) Prerequisite: permission of instructor. Repeatable to 6 credits if content differs. Topics in the cultures of the Germanic speaking countries.

GERM 299 Special Topics in Germanic Studies (3) Prerequisite: permission of department. Repeatable to 9 credits if content differs.

GERM 301 Conversation and Composition I: Germany and Its People (3) Prerequisite: GERM204 or equivalent. Practice in contemporary spoken and written German. Systematic review of grammar, and exercises in composition. Emphasis on cultural contrasts.

GERM 302 Conversation and Composition II: Current Topics in German Society (3) Prerequisite: GERM301 or equivalent. Further practice in contemporary spoken and written German. Contemporary social, political, and cultural themes.

GERM 315 Practicum in Translation I (3) Prerequisite: GERM204 or equivalent. Problems and strategies of translation from German to English.

GERM 316 Practicum in Translation II (3) Prerequisite: GERM315 or equivalent. Continuation of problems and strategies of translation from English to German and German to English.

GERM 319 Selected Topics in Germanic Language Studies (1-3) Prerequisite: GERM203 or equivalent. Repeatable to 6 credits if content differs.

GERM 320 Survey of German Studies (3) Prerequisite: GERM301 or equivalent. Approaches to analysis of German cultural products such as literature, film, poetry, architecture and works of art. In German.

GERM 321 Highlights of German Literature I (3) Prerequisite: GERM301 or equivalent. Selected masterworks from different periods of German literature: Middle Ages, Reformation, Baroque, 18th Century, Classicism. Readings and instruction in German.

GERM 322 Highlights of German Literature II (3) Prerequisite: GERM301 or equivalent. Selected masterworks from different periods of German literature: Romanticism, Biedermeier, Junges Deutschland, Realism, Naturalism and its counter currents, Expressionism to the present. Readings and instruction in German.

GERM 339 German Literature In Translation (3) Repeatable to 6 credits if content differs. Selected movements, genres or other special topics in German literature. Readings and instruction in English. May not be counted in the fulfillment of German major requirements in German literature.

GERM 349 Germanic Literatures in Translation (3) Repeatable to 6 credits if content differs. Study of an important author, period or theme in a Germanic literature other than German: Yiddish, Netherlandic or Scandinavian. Readings and instruction in English.

GERM 360 Women in Scandinavian Literature (3) Prerequisite: a literature, culture, diversity course or permission of department. Introduction to and examination of women's creative work in Scandinavia from the Middle Ages to the present. Taught in English.

GERM 368 Scandinavian Civilization (3) Repeatable to 6 credits if content differs. Literary, artistic and historic traditions, folklore and superstition, customs and lifestyle shared by Scandinavian nations. Readings and instruction in English.

GERM 369 Scandinavian Literature in Translation (3) Repeatable to 6 credits if content differs. Study of a major

Scandinavian author, genre, period or theme. Readings and instruction in English.

GERM 381 German Civilization I (3) A survey of the literary, educational and artistic traditions, great men and women, customs and general culture of the German-speaking world from the beginnings to the middle of the 18th century. All readings and instruction are in English.

GERM 382 German Civilization II (3) A continuation of GERM381 covering the development of German, Austrian and Swiss civilizations from the middle of the 18th century to the present. All readings and instruction are in English.

GERM 386 Experiential Learning (1-6) Prerequisite: permission of department. Junior standing.

GERM 388 Language House Spring Colloquium (1) Prerequisite: Residence in Language House. Repeatable to 8 credits. For students residing in the Language House Immersion Program. Focuses on the development of skills in the target language and acquiring the cultural knowledge of the countries that speak the target language.

GERM 389 Topics in Germanic Culture (3) Repeatable to 6 credits if content differs. Topics in the cultures of the German, Germanic, Indo-European peoples and of their culturally related non-Indo-European neighbors. Instruction in English.

GERM 397 Honors Reading (Independent Study) (3) Supervised reading to be taken normally only by students admitted into honors program.

GERM 398 Honors Research (3) Prerequisite: permission of department. Repeatable to 6 credits if content differs. Prepares students to write an honors thesis. Under the direction of a German department faculty member, the student will select a thesis topic and conduct the necessary research.

GERM 399 Selected Topics in Germanic Studies (3) Prerequisite: permission of department. Repeatable to 9 credits if content differs.

GERM 401 Advanced Conversation: Germany within Europe (3) Prerequisite: GERM302 or equivalent. Development of fluency in spoken German. Discussion of contemporary issues related to Germany in context of Europe.

GERM 403 Advanced Composition: German Cultural and Social Issues (3) Prerequisite: GERM302 or equivalent. Advanced instruction in writing skills. Contemporary and/or historical treatment of cultural and social issues.

GERM 405 Stylistics (3) Prerequisite: GERM302 or equivalent. Stylistic analysis of oral and written German both literary and non-literary. Intensive study of vocabulary and syntax. Dictionary and composition exercises.

GERM 411 German for International Business I (3) Prerequisite: GERM302 or equivalent or permission of department. Advanced skills in German for international business, including understanding and writing correspondence, reports, graphics, ads, etc., according to current German commercial style.

GERM 412 German for International Business II (3) Prerequisite: GERM411 or equivalent or permission of department. Continuation of GERM411.

GERM 415 German/English Translation I (3) Does not fulfill major requirements in German. Not open to students who have completed GERM101, GERM102, GERM103, GERM201, GERM202, GERM203, GERM204, GERM301, or GERM302. An intensive presentation of German grammar limited exclusively to reading skill; graded readings in the arts and sciences. Instruction in English; cannot be used to satisfy the arts and humanities foreign language requirement.

GERM 416 German/English Translation II (3) Prerequisite: GERM415 or equivalent. Written translation of materials from the student's field of study. Discussion of basic problems of German-to-English translation, with examples from students' projects. Instruction in English. Cannot be used to satisfy the arts and humanities foreign language requirement.

GERM 419 Selected Topics in German Language Study (3) Prerequisite: GERM302 and permission of department. Repeatable to 6 credits if content differs.

GERM 421 Literature of the Middle Ages (3) Prerequisite: GERM320, GERM321, or GERM322; or permission of department. German literature from the 8th through the 15th centuries. Readings include Old High German texts; the German heroic, courtly and popular epic; Minnesang, Meistersang, the late Medieval epic: folk literature of the late Middle Ages. Read in modern German translation.

GERM 422 From the Reformation Through the Baroque (3) Prerequisite: GERM320, GERM321, or GERM322; or permission of department. Readings of representative authors from the reformation and the period of humanism through the baroque (ca. 1450-1700). Readings and instruction in German.

GERM 423 From Enlightenment through Storm and Stress (3) Prerequisite: GERM320, GERM321, or GERM322; or permission of department. Readings of representative authors from the Enlightenment (1720- 1785), the Age of Sentimentalism (1740-1780), and Storm and Stress (1767-1785). Readings and instruction in German.

GERM 424 Classicism (3) Prerequisite: GERM320, GERM321, or GERM322; or permission of department. Readings of representative authors from the Age of Classicism (1786-1832). Readings and instruction in German.

GERM 431 Romanticism and Biedermeier (3) Prerequisite: GERM320, GERM321, or GERM322; or permission of department. Readings of representative authors from the periods of Romanticism (1798-1835) and Biedermeier (1820-1850). Readings and instruction in German.

GERM 432 Junges Deutschland and Realism (3) Prerequisite: GERM320, GERM321, or GERM322; or permission of department. Readings of representative authors from the periods of Junges Deutschland (1830-1850) and Realism (1850-1890). Readings and instruction in German.

GERM 433 Naturalism and Its Counter Currents (3) Prerequisite: GERM320, GERM321, or GERM322; or permission of department. Readings of representative authors from the period of naturalism and its counter currents (1880-1920). Readings and instruction in German.

GERM 434 Expressionism to 1945 (3) Prerequisite: GERM320, GERM321, or GERM322; or permission of department. Readings of representative authors from Expressionism through the period between the wars to the contrast of Nazi and Exile Literature (ca. 1910-1945). Readings and instruction in German.

GERM 435 From 1945 to the Present (3) Prerequisite: GERM320, GERM321, or GERM322; or permission of department. Readings of representative authors from Germany, Austria, and Switzerland in the period from the end of World War II to the present. Readings and instruction in German.

GERM 439 Selected Topics in German Literature (3) Prerequisite: GERM320, GERM321, or GERM322; or permission of department. Repeatable to 6 credits if content differs. Special study of an author, school, genre, or theme. Readings and instruction in German.

GERM 449 Selected Topics in Germanic Studies (3) Prerequisite: permission of department. Repeatable to 6 credits if content differs. Study of a linguistic, literary or cultural topic in Yiddish, Netherlandic, or Scandinavian studies.

GERM 461 Reading Swedish, Danish and Norwegian I (3) Not open to students who have completed GERM148S, GERM149S, GERM148D, GERM149D, GERM148N or GERM149N. Develops reading facility in three languages in one semester, using modern Scandinavian texts from a variety of fields.

GERM 463 The Icelandic Family Saga (3) Analysis of the old Norse saga as historiography, literature, and folklore. Readings and instruction in English.

GERM 472 Introduction to Germanic Philology (3) Prerequisite: GERM202 or equivalent. Reconstructed proto-Germanic and surveys of Gothic, Old Norse, Old English, Old Saxon. The development of High German from the Old High German period through Middle High German to modern German; a short introduction to modern German dialectology. Instruction in English.

GERM 475 Old Norse (3) The language of the old Icelandic saga, the Eddas and Skaldic poetry. Reading of texts in the original; historical development of Old Norse and its role in the Germanic language family. No knowledge of German or a Scandinavian language required; instruction in English.

GERM 479 Selected Topics in Germanic Philology (3) Prerequisite: permission of department. Repeatable to 6 credits if content differs. Selected topics such as comparative Germanic studies, Old Norse language or readings in Old Norse literature, modern German dialectology.

GERM 489 Selected Topics in Area Studies (1-3) Prerequisite: GERM302 or equivalent or permission of department. Repeatable to 6 credits if content differs.

GERM 498 Honors Thesis Writing (3) Prerequisite: permission of department. Repeatable to 6 credits if content differs. Required for students pursuing departmental honors in Germanic languages and literatures. Under the direction of a German department faculty member, students write their honors theses.

GERM 499 Directed Study (1-3) Prerequisite: permission of department. Repeatable to 6 credits if content differs.

GREK -- Greek

GREK 101 Elementary Ancient Greek I (4) A student who has had two units of Greek in high school may register for GREK101 for purposes of review but not for credit. Study of basic grammar, development of reading facility, and introduction to Athenian life and culture in the fifth century B.C.

GREK 102 Elementary Ancient Greek II (4) Prerequisite: GREK101 or equivalent. Continuing development of basic grammar and reading skills; study and discussion of central aspects of Greek culture.

GREK 111 Elementary Modern Greek I (3) Not open to native speakers of Greek. Credit will be granted for only one of the following: FOLA108G or GREK111. Formerly FOLA108G. An introduction to the language and culture of modern Greece. Students begin to acquire the basic tools of the language and to communicate, in simple everyday situations. This is the first of our two-semester sequence in Elementary Modern Greek and contributes to the fulfillment of the foreign language requirement of the College of Arts and Humanities.

GREK 112 Elementary Modern Greek II (3) Not open to native speakers of Greek. Prerequisite: GREK111 or permission of instructor. Credit will be granted for only one of the following: FOLA109G or GREK112. Formerly FOLA109G. It is designed for students who have already completed the first semester course (GREK111) and/or those whose level of proficiency in Greek is not advanced enough for the intermediate level. Like GREK111, an introduction is provided to the language and culture of modern Greece. Students acquire the basic tools of the language and learn to communicate in simple, everyday situations. This is the second of our two-semester sequence in Elementary Modern Greek and contributes to the fulfillment of the foreign language requirement of the College of Arts and Humanities.

GREK 201 Intermediate Ancient Greek (4) Prerequisite: GREK102 or equivalent. Advancing beyond the basic skills developed in GREK 101 and GREK 102; review of selected grammatical concepts; continuous reading of passages from Greek literature.

GREK 211 Intermediate Modern Greek I (3) Not open to native speakers of Greek. Prerequisite: GREK112 or permission of instructor. Credit will be granted for only one of the following: FOLA118G or GREK211. Formerly FOLA118G. A continuation of the study of basic structures and the development of fluency in functional, spoken and written communication. This is the first of our two-semester sequence in Intermediate Modern Greek and contributes to the fulfillment of the foreign language requirement of the College of Arts and Humanities.

GREK 212 Intermediate Modern Greek II (3) Prerequisite: GREK211 or permission of instructor. Credit will be granted for only one of the following: FOLA119G or GREK212. Formerly FOLA119G. A continuation in the development of fluency in spoken and written communication along with the exploration of syntactic and grammatical structures. Comprehension and vocabulary enrichment are further developed through selected readings from Modern Greek prose and poetry. This is the second of our two-semester sequence in Intermediate Modern Greek and contributes to the fulfillment of the foreign language requirement of the College of Arts and Humanities.

GREK 301 Scenes from Athenian Life (3) Credit will be granted for only one of the following: GREK301 or GREK351. Formerly GREK351. Makes the transition from study of Greek grammar to reading. Focus on selected aspects of life in Athens: marriage, friendship, the courts, festival, theatre. Reading short works by three authors: Lysias, Plato, and a playwright (e.g., Menander).

GREK 311 Readings and Conversations (3) Prerequisite: GREK212 or equivalent and permission of instructor. Designed to help the student improve skills in conversation and reading. Students will be expected to read and discuss moderately advanced Greek texts on a variety of subjects and in a variety of styles.

GREK 386 Experiential Learning (3-6) Prerequisite: Learning Proposal approved by the Office of Experiential Learning Programs, faculty sponsor, and student's internship sponsor. Junior standing.

GREK 402 Greek Philosophers (3)

GREK 403 Greek Tragedy (3)

GREK 415 Homer (3) Prerequisite: permission of department. Extensive readings in Greek from the Iliad and the Odyssey, with special attention to the features of Homeric style and the similarities and differences between the two epics.

GREK 472 History and Development of the Greek Language (3) Prerequisite: permission of instructor. Mastery of ancient Greek through grammar review, prose composition, and analysis of historical developments in Greek writers' modes of expression.

GREK 488 Greek Readings (3) Prerequisite: permission of department. Repeatable to 6 credits if content differs. The reading of one or more selected Greek authors. Reports.

GREK 499 Independent Study in Greek Language and Literature (1-3) Prerequisite: permission of department. Repeatable to 6 credits if content differs.

GVPT -- Government and Politics

GVPT 100 Principles of Government and Politics (3) A study of the basic principles and concepts of political science.

GVPT 170 American Government (3) A comprehensive study of national government in the United States.

GVPT 200 International Political Relations (3) Prerequisite: GVPT100. A study of the major factors underlying international relations, the methods of conducting foreign relations, the foreign policies of the major powers, and the means of avoiding or alleviating international conflicts.

GVPT 210 Introduction to Public Administration and Policy (3) Prerequisite: GVPT170. An introduction to the study of the administrative process in the executive branch with an examination of the concepts and principles of administration and their relationship to public policy. The organizational structure, theory and the behavior of participants in the administration of policy.

GVPT 220 Introduction to Political Behavior (3) Prerequisite: GVPT100 or GVPT170. Development, concepts and techniques of the behavioral approach to political science and other recent developments in the field.

GVPT 221 Introduction to Formal Theories of Political Behavior and Politics (3) Prerequisite: GVPT170. An introduction to the theories of rational choice including theories of negotiation and bargaining, elections and voting in democracies, community organizing and the contrast between the roles and performances of government and market.

GVPT 227 The Craft of Political Science Research (4) Three hours of lecture and one hour of laboratory per week. Prerequisite: GVPT100 and GVPT170. Sophomore standing. For BSOS majors only. An introduction to research design and statistics applicable to Political Science.

GVPT 228 The Craft of Political Science Research (4) Three hours of lecture and two and a half hours of laboratory per week. Prerequisite: GVPT170 and GVPT100. Sophomore standing. For BSOS majors only. Repeatable to 8 credits if content differs. Formerly GVPT227. An introduction to research design and statistics applicable to Political Science.

GVPT 231 Law and Society (3) A study of the basis of law and its relationship with various contemporary institutions such as the courts, the legal profession, and society at large.

GVPT 240 Political Ideologies (3) Prerequisite: GVPT100. A survey and analysis of the leading ideologies of the modern world, including anarchism, communism, socialism, fascism, nationalism, and democracy.

GVPT 241 The Study of Political Philosophy: Ancient and Modern (3) Prerequisite: GVPT100. For GVPT majors only. Examines some of the salient continuities and breaks between the ancient and modern traditions in Western political philosophy.

GVPT 250 Introduction to International Negotiation (3) Prerequisite: GVPT100. Recommended: GVPT200. Introduction to the complexities of international negotiation and cross-cultural decision-making. Students will apply advanced computer technology in an interactive simulation involving actual negotiations.

GVPT 260 State and Local Government (3) Prerequisite: GVPT170. A study of the functioning and problems of state and local government in the United States, with illustrations from Maryland jurisdictions.

GVPT 270 Introduction to Public Policy (3) Prerequisite: GVPT170. Complex nature of public policy making at the national level in the United States. Policy making will be described and analyzed in terms of major actors, relationships, and characteristics.

GVPT 272 The Politics of Race Relations in the United States (3) Prerequisite: GVPT170. Political dimension of historical and contemporary racial cleavage in the United States with particular emphasis on the post World War II period.

GVPT 273 Introduction to Environmental Politics (3) A comprehensive overview of environmental problems, institutions, policies, practices, and remedies found in present-day world society, with special emphasis on environmental matters as objects of American public policy, both domestic and foreign.

GVPT 280 Comparative Politics and Governments (3) Prerequisite: GVPT100. An introduction to the comparative study of politics and governance, including the analytical frameworks for studies of politics and governmental institutions and a survey of the major types of European regimes.

GVPT 282 The Government and Politics of the Third World (3) Prerequisite: GVPT100. A study of the governmental institutions, processes and problems, and the socio-economic environment which are common to the great majority of the Third World states of Africa. The Middle East, Asia, and Latin America; and in which internal politics develop.

GVPT 289 Special Topics in Government and Politics (1-6) Repeatable to 6 credits if content differs. Substantive issues of and theoretical approaches to political phenomenon. Topics and credit vary.

GVPT 306 Global Ecopolitics (3) Prerequisite: GVPT200. Consideration of global problems such as the growth controversy, agricultural productivity, pollution, resource depletion, the energy crisis, and the general impact of science and technology on the world ecological, socio-economic, and political system with particular emphasis on such matters as objects of public policy.

GVPT 309 Topics in International Relations (3) Repeatable to 6 credits if content differs. The study of topics in international relations.

GVPT 319 Topics in Social Advocacy (1-3) Prerequisite: permission of department. Repeatable to 6 credits if content differs. Reading, research and discussion of variety of topics related to social advocacy.

GVPT 321 Intermediate Formal Theories of Political Behavior and Politics (3) Prerequisite: GVPT221 or permission of department. Analysis of the theory of games, social choice, voting and such notions of social welfare as distributive justice and liberty.

GVPT 331 Law and Society (3) Two hours of lecture and one hour of discussion/recitation per week. Prerequisite: GVPT170 or GVPT171. Not open to students who have completed GVPT231. Credit will be granted for only one of the following: GVPT231 or GVPT331. Formerly GVPT231. A study of the basis of law and its relationship with various contemporary institutions such as the courts, the legal profession, and society at large.

GVPT 333 Information Technology and Society (3) Also offered as BSOS333. Credit will be granted for only one of the following: BSOS333 or GVPT333. Multi-disciplinary course utilizes a collaborative research model approach to focus on the influences of information and communication technologies on the way we live, work, learn, and relate to each other and to our community. Given the collaborative nature of the course, students may not drop after the first four weeks of class.

GVPT 339 Topics in Public Law (3) Repeatable to 6 credits if content differs. The study of topics in public law.

GVPT 341 Political Morality and Political Action (3) Prerequisite: GVPT100. The ethical problems implicit in public actions by individuals, groups, and government. Selected topics in contemporary political theory such as distribution, participation, and equality.

GVPT 349 Topics in Political Philosophy (3) Repeatable to 6 credits if content differs. The study of topics in political philosophy.

GVPT 350 International Relations of the Third World (3) Prerequisite: GVPT200. A systemic view of relations between the industrialized and third world nations examining specific themes such as the legacy of colonialism, the origins and goals of national liberation movements, efforts to promote regional cooperation, and global movements such as nonalignment and the quest for a new international economic order.

GVPT 354 Peacebuilding, Post-Conflict Reconstruction, and International (3) Development Prerequisite: permission of department. Sophomore standing. Also offered as BSOS354. Credit will be granted for only one of the following: BSOS354 or GVPT354. A study of the interrelation between violent conflict and socio-economic development worldwide. Students will become familiar with current strategies for designing and implementing conflict-sensitive development strategies.

GVPT 355 Capstone I: International Development and Conflict Management (3) Two hours of lecture and one hour of discussion/recitation per week. Prerequisite: Only open to students in IDCM Minor Program. Recommended: GVPT354. This course serves as one-half of the Capstone Session for the Minor in International Development and Conflict Management. It is designed to provide students an introduction to, and a chance to practice with, a core set of practical skills relevant to the fields of international development, humanitarian relief and conflict management. This course must be taken in conjunction with GVPT356.

GVPT 356 Capstone II: International Development and Conflict Management (3) Two hours of lecture and one hour of discussion/recitation per week. Prerequisite: only open to students in IDCM Minor and GVPT355. Recommended: GVPT354. This course serves one-half of the Capstone Course for the Minor in International Development and Conflict Management. It is designed to provide students an introduction to, and a chance to practice with, a core set of practical skills relevant to the fields of international development, humanitarian relief and conflict management. This course must be taken in conjunction with GVPT355.

GVPT 359 Topics in Comparative Politics (3) Repeatable to 6 credits if content differs. The study of topics in comparative politics.

GVPT 360 International Negotiations (3) Recommended: GVPT200. Credit will be granted for only one of the following: GVPT250 or GVPT360. Formerly GVPT250. A study of tthe complexities of international negotiation and cross-cultural decision-making. Students will apply advanced computer technology in an interactive simulation involving actual negotiations.

GVPT 376 Applied Field Research in Government and Politics (3-6) Prerequisite: GVPT170. Corequisite: GVPT377. Students in this course participate as interns in an agency of government or in some other appropriate political organization. Assignments are arranged to provide students with insights into both theoretical and practical aspects of politics. Under the tutelage of the host agency and an academic adviser, students conduct a major research project of mutual interest to the student and his or her host agency in the field of government and politics.

GVPT 377 Seminar For Academic Interns (3) Prerequisite: GVPT170. Corequisite: GVPT376. The application of major concepts of political science to the realities of the political process. Readings and discussion attempt to relate the experiences of the academic interns to appropriate literature on the subject of political decision-making.

GVPT 379 Topics in American Politics (3) Repeatable to 6 credits if content differs. The study of topics in American politics.

GVPT 386 Experiential Learning (3-6) Prerequisite: permission of department. Junior standing.

GVPT 388 Topical Investigations (1-3) Prerequisite: one 200-level GVPT course. Repeatable to 6 credits if content differs. Independent research and writing on selected topics in government and politics.

GVPT 389 Experiential Learning II (3-6) Prerequisite: permission of department. Junior standing. Repeatable to 6 credits. Experiential credit for working in Government & Politics related internships, research, and teaching opportunities.

GVPT 396 Introduction to Honors Research (3) Prerequisite: admission to and permission of GVPT Honors Program. A required course for all honors students designed to emphasize library research, methodology, and writing skills in political science and political philosophy. A written proposal, bibliography and research design for an honors paper required of all students as a final project.

GVPT 397 Honors Research (3) Prerequisite: GVPT396 and admission to GVPT honors program. Individual reading and research. Preparation of an original paper.

GVPT 399 Seminar in Government and Politics (3) Prerequisite: one 200-level GVPT course. Reading, research, discussion, analysis, and writing in the area of politics. Both substantive issues and methodological approaches will be considered. Primarily for government and politics undergraduate majors.

GVPT 401 Problems of World Politics (3) Prerequisite: GVPT200. Junior standing. For GVPT majors only. A study of governmental problems of international scope, such as causes of war, problems of neutrality, and propaganda. Students are required to report on readings from current literature.

GVPT 402 International Law (3) Prerequisite: GVPT200. Junior standing. For GVPT majors only. A study of the basic character, general principles and specific rules of international law, with emphasis on recent and contemporary trends in the field and its relation to other aspects of international affairs.

GVPT 403 Law, Morality, War and Terrorism (3) Prerequisite: GVPT200. For GVPT majors only. An exploration of the political and moral concerns involved in the use or threat of use of force in modern international affairs and diplomacy. Topics of intensive study include, among others, comparative and international laws governing terrorism and counter-terrorism, jus ad bellum, jus en bello, preemptive war, institutional legal processes for promoting the use of and enforcing international conflict resolution and arbitrary procedures to prevent or control international violence, and the roles of international courts in trials of war criminals and terrorists.

GVPT 404 Private International Law (3) Prerequisite: GVPT200. Recommended: GVPT402. Junior standing. For GVPT majors only. An introduction to private international law, defined as those substantive laws that a nation or nations have applied to private transactions involving transnational relationships. Private international law is often called the "conflict of laws" because it almost always arises to deal with the existence of a number of separate legal systems in the various states, each practicing their own 'municipal law' in ways that invariably raise real and potential conflicts requiring accommodation and cooperation.

GVPT 405 Defense Policy and Arms Control (3) Prerequisite: GVPT200. For GVPT majors only. Contemporary issues of military strategy and international security are covered, including: nuclear war, conventional (limited war), guerrilla insurgency, arms control, disarmament, moderation of war, defense policy processes, and defense economics.

GVPT 406 International Organizations (3) Prerequisite: GVPT200. Junior standing. For GVPT majors only. Credit will be granted for only one of the following: GVPT309B or GVPT406. Formerly GVPT309B. A basic introduction to the full range of international organizations that have come into being over the past century and one-half, including those that aspire to be universal or global, those with a geopolitical or regional focus, and those that address specific structural or functional areas of human endeavor or issue areas.

GVPT 407 International Political Economy (3) Prerequisite: GVPT200. Junior standing. For GVPT majors only. Introduces the field of international political economy, which analyzes the ways in which economic and political changes produce both economic and political reactions.

GVPT 409 Seminar in International Relations and World Politics (3) Prerequisite: GVPT200. Junior standing. For GVPT majors only. Repeatable to 6 credits if content differs. Reading, writing, and research on topics in international relations and world politics. Both substantive issues and methodological approaches will be considered.

GVPT 419 Seminar in Public Policy (3) Prerequisite: GVPT170 and GVPT241. Recommended: GVPT270. For GVPT majors only. Repeatable to 6 credits if content differs. Reading, writing, and research on topics in public policy. Both substantive issues and methodological approaches will be considered.

GVPT 422 Quantitative Political Analysis (3) Prerequisite: GVPT170 and GVPT241. Recommended: GVPT220. For GVPT majors only. Credit will be granted for only one of the following: BIOM301, BMGT230, ECON321, EDMS451, GEOG305, GVPT422, PSYC200, or SOCY201. Introduction to quantitative methods of data analysis, including selected statistical methods, block analysis, content analysis, and scale construction.

GVPT 423 Elections and Electoral Behavior (3) Prerequisite: GVPT170 and GVPT241. For GVPT majors only. An examination of various topics relating to elections; the focus includes the legal structure under which elections are conducted, the selection and nomination process, the conduct of election campaigns, and patterns of political participation and voting choice in different types of elections.

GVPT 424 Topics in Formal Theories of Political Behavior and Politics (3) Prerequisite: GVPT221 and GVPT241. For GVPT majors only. The focus of this course will vary both by its theoretical core and its applications. The theories are likely to be those of games, social choice, and voting. The applications will usually be to problems of distributive and social justice, community organizing, responsive public policy, institutional design, alliance and coalition formation, etc. Some of the topics will involve research projects.

GVPT 426 Public Opinion (3) Prerequisite: GVPT170 and GVPT241. Recommended: GVPT220. Junior standing. For GVPT majors only. An examination of public opinion and its effect on political action, with emphasis on opinion formation and measurement, propaganda and pressure groups.

GVPT 427 Political Sociology (3) Prerequisite: GVPT170 and GVPT241. Recommended: GVPT220. For GVPT majors only. A study of the societal aspects of political life including selected aspects of the sociology of group formation and group dynamics, political association, community integration and political behavior.

GVPT 428 Topics in Formal Theories of Political Behavior and Politics (3) Prerequisite: GVPT221 and GVPT241. For GVPT majors only. Repeatable to 6 credits if content differs. An evaluation of theories of political behavior such as game, social choice and voting theory, and their applications to problems of distribution and social justice, community organizing, responsive public policy, institutional design, and alliance and coalition formation.

GVPT 429 Problems in Political Behavior (3) Prerequisite: GVPT241. Recommended: GVPT220. For GVPT majors only. The problem approach to political behavior with emphasis on theoretical and empirical studies on selected aspects of the political process.

GVPT 431 Introduction to Constitutional Law (3) Prerequisite: GVPT170 and GVPT241. Junior standing. For GVPT majors only. A systematic inquiry into the general principles of the American constitutional system, with special reference to the role of the judiciary in the interpretation and enforcement of the federal constitution.

GVPT 432 Civil Rights and the Constitution (3) Prerequisite: GVPT241 and GVPT331. For GVPT majors only. A study of civil rights in the American constitutional context, emphasizing freedom of religion, freedom of expression, minority discrimination, and the rights of defendants.

GVPT 433 The Judicial Process (3) Prerequisite: GVPT241 and GVPT331. For GVPT majors only. An examination of judicial organization in the United States at all levels of government, with some emphasis on legal reasoning, legal research and court procedures.

GVPT 434 Race Relations and Public Law (3) Prerequisite: GVPT241 and GVPT331. For GVPT majors only. A political and legal examination of the constitutionally protected rights affecting racial minorities and of the constitutional power of the federal courts, congress, and the executive to define, protect and extend these rights.

GVPT 436 The Legal Status of Women (3) Prerequisite: GVPT241 and GVPT331. For GVPT majors only. Also offered as WMST436. Credit will be granted for only one of the following: GVPT436 or WMST436. An examination of judicial interpretation and application of common, statutory, and constitutional law as these affect the status of women in American society.

GVPT 439 Seminar in Public Law (3) Prerequisite: GVPT170 and GVPT241. Recommended: GVPT331. Junior standing. For GVPT majors only. Repeatable to 6 credits if content differs. Reading, writing, and research on topics in public law. Both substantive issues and methodological approaches will be considered.

GVPT 441 History of Political Theory: Ancient and Medieval (3) Prerequisite: GVPT241. Junior standing. For GVPT majors only. A survey of the principal political theories set forth in the works of writers before Machiavelli.

GVPT 442 History of Political Theory--Medieval to Recent (3) Prerequisite: GVPT241. For GVPT majors only. A survey of the principal theories set forth in the works of writers from Machiavelli to Nietzsche.

GVPT 443 Contemporary Political Theory (3) Prerequisite: GVPT241. For GVPT majors only. A survey of the principal political theories and ideologies set forth in the works of writers from Karl Marx to the present.

GVPT 444 American Political Theory (3) Prerequisite: GVPT170 and GVPT241. For GVPT majors only. A study of the development and growth of American political concepts from the Colonial period to the present.

GVPT 445 Marxism and Postmarxism (3) Prerequisite: GVPT100. The study of Marxist thought and an assessment of the critical transformations and reassessments of the theory and practice of Marxism.

GVPT 447 Islamic Political Philosophy (3) The writings of one or several authors from the rise of Islamic philosophy until today are examined in order to see how they understand the conflicting claims of revelations and unaided human reason about the best regime, justice, and human virtue.

GVPT 448 Non-Western Political Thought (3) Prerequisite: GVPT241; permission of department required for repeat. For GVPT majors only. Examination of works by major authors and general themes of political thought originating in Asia, the Middle East, and Africa. This is not a survey of all non-Western political thought, but a course to be limited by the professor with each offering.

GVPT 449 Seminar in Political Philosophy (3) Prerequisite: GVPT241. For GVPT majors only. Repeatable to 6 credits if content differs. Reading, writing, and research on topics in political philosophy. Both substantive issues and methodological approaches will be considered.

GVPT 450 Comparative Study of Foreign Policy Formation (3) Prerequisite: GVPT200. For GVPT majors only. The opportunity to learn the theoretical underpinnings of foreign policy decision-making and to apply this knowledge in a simulation of a "real world" negotiation.

GVPT 453 Recent East Asian Politics (3) Prerequisite: GVPT200. For GVPT majors only. The background and interpretation of recent political events in East Asia and their influence on world politics.

GVPT 454 Seminar in the International Relations of China (3) Prerequisite: GVPT200. Junior standing. For GVPT majors only. Credit will be granted for only one of the following: GVPT409D or GVPT454. Formerly GVPT409D. Explores the foreign relations behavior of the People's Republic of China, with focus on the contemporary era.

GVPT 455 Contemporary Middle Eastern Politics (3) Prerequisite: GVPT200; and GVPT280 or GVPT282. For GVPT majors only. A survey of contemporary development in the international politics of the Middle East nations in the world affairs.

GVPT 457 American Foreign Relations (3) Prerequisite: GVPT200. Junior standing. For GVPT majors only. The principles and machinery of the conduct of American foreign relations, with emphasis on the Departments of State and Defense, and an analysis of the major foreign policies of the United States.

GVPT 459 Seminar in Comparative Politics (3) Prerequisite: GVPT200; and GVPT280 or GVPT282. For GVPT majors only. Repeatable to 6 credits if content differs. Reading, writing, and research on topics in comparative politics. Both substantive issues and methodological approaches will be considered.

GVPT 460 Problems in State and Local Government (3) Prerequisite: GVPT170 and GVPT241. Recommended: GVPT260. For GVPT majors only. A study of the structure, procedures and policies of state and local governments with special emphasis on the state level and on intergovernmental relationships, and with illustrations from Maryland governmental arrangements.

GVPT 461 Metropolitan Government (3) Prerequisite: GVPT170 and GVPT241. For GVPT majors only. An examination of administrative problems relating to public services, planning and coordination in a metropolitan environment.

GVPT 462 Urban Politics (3) Prerequisite: GVPT170 and GVPT241. Recommended: GVPT260. Credit will be granted for only one of the following: GVPT461 or GVPT462. Urban political process and institutions considered in the light of changing social and economic conditions.

GVPT 473 Legislatures and Legislation (3) Prerequisite: GVPT170 and GVPT241. Junior standing. For GVPT majors only. A detailed survey of lawmaking and the legislative process, emphasizing the U.S. Congress and its members.

GVPT 474 Political Parties (3) Prerequisite: GVPT170 and GVPT241. For GVPT majors only. A descriptive and analytical examination of American political parties, nominations, elections, and political leadership.

GVPT 475 The Presidency and the Executive Branch (3) Prerequisite: GVPT170 and GVPT241. Junior standing. For GVPT majors only. An examination of the U.S. presidency in historical and contemporary perspective: nomination and electoral politics and the president's place in policy-making, administration, and public opinion.

GVPT 476 The Business Government Relationship (3) Prerequisite: GVPT170 and GVPT241. Recommended: GVPT270. For GVPT majors only. Examines the structures, process, and outcomes of business and government and the politics and products of their cooperative-adversarial relationships in the United States. The design integrates interest group and administrative politics and the public policy process.

GVPT 479 Seminar in American Politics (3) Prerequisite: GVPT170 and GVPT241. Junior standing. For GVPT majors only. Repeatable to 6 credits if content differs. Reading, writing, and research on topics in American politics. Both substantive issues and methodological approaches will be considered.

GVPT 480 Comparative Political Systems (3) Prerequisite: GVPT200; and GVPT280 or GVPT282. For GVPT majors only. A study, along functional lines, of major political institutions, such as legislatures, executives, courts, bureaucracies, public organizations, and political parties.

GVPT 481 Government and Administration of Russia and the States of the (3) Former Soviet Union Prerequisite: GVPT200; and GVPT280 or GVPT282. For GVPT majors only. A comparative study of the governmental systems and political processes of the states of the former Soviet Union.

GVPT 482 Government and Politics of Latin America (3) Prerequisite: GVPT200; and GVPT280 or GVPT282. For GVPT majors only. A comparative study of the governmental systems and political processes of the Latin American countries.

GVPT 483 Government and Politics of Asia (3) Prerequisite: GVPT200; and GVPT280 or GVPT282. For GVPT majors only. A comparative study of governments and politics of Asian countries.

GVPT 484 Government and Politics of Africa (3) Prerequisite: GVPT280 or GVPT282. A comparative study of the governmental systems and political processes of the African countries, with special emphasis on the problems of nation-building in emergent countries.

GVPT 485 Government and Politics of the Middle East (3) Prerequisite: GVPT200; and GVPT280 or GVPT282. For GVPT majors only. A comparative study of the governmental systems and political processes of the African countries, with special emphasis on the problems of nation-building in emergent countries.

GVPT 486 Comparative Studies in European Politics (3) Prerequisite: GVPT200; and GVPT280 or GVPT282. For GVPT majors only. A comparative study of the governmental systems and political processes of the Middle Eastern countries, with special emphasis on the problems of nation-building in emergent countries.

GVPT 487 Government and Politics of China (3) Prerequisite: GVPT200. Recommended: GVPT280 or GVPT282. Junior standing. For GVPT majors only. Credit will be granted for only one of the following: GVPT359A or GVPT487. Formerly GVPT359A. Discussion of major issues in the study of the domestic politics of the People's Republic of China.

GVPT 492 The Comparative Politics of Race Relations (3) Prerequisite: GVPT200. Recommended: GVPT280 or GVPT282. For GVPT majors only. Impact of government and politics on race relations in various parts of the world. The origins, problems, and manifestations of such racial policies as segregation, apartheid, integration, assimilation, partnership, and non-racialism will be analyzed.

HEBR -- Hebrew

HEBR 111 Elementary Hebrew I (6) Six hours of discussion/recitation per week. Modern Israeli Hebrew. Emphasis on conversation. Study of linguistic structure and development of audio-lingual, writing and reading ability.

HEBR 112 Elementary Hebrew II (6) Six hours of discussion/recitation per week. Prerequisite: HEBR111 or equivalent. Continuation of HEBR 111.

HEBR 199 Special Topics in Hebrew (3) Prerequisite: permission of department. Repeatable to 9 credits if content differs. Topics in language, literature, and culture. Varies by semester and instructor.

HEBR 211 Intermediate Hebrew I (6) Six hours of discussion/recitation per week. Prerequisite: HEBR112 or equivalent. Study of linguistic structure, further development of audio-lingual, reading, writing, and speaking skills. Reading of texts and newspapers designed to give some knowledge of Hebrew life, thought and culture.

HEBR 212 Intermediate Hebrew II (6) Six hours of discussion/recitation per week. Prerequisite: HEBR211 or permission of department. Continuation of HEBR211.

HEBR 298 Special Topics in Jewish Studies (3) Repeatable to 6 credits if content differs.

HEBR 313 Conversation and Composition I (3) Prerequisite: HEBR212 or equivalent. A practical language course recommended for all students continuing with Hebrew. Review of grammar and composition. Selected readings. Oral and written exercises.

HEBR 314 Conversation and Composition II (3) Prerequisite: HEBR313 or equivalent. A practical language course recommended for all students continuing with Hebrew. Review of grammar and composition. Selected readings. Oral and written exercises.

HEBR 381 Introduction to Hebrew Cultural Studies (3) Prerequisite: HEBR314 or permission of instructor. Also offered as JWST381. Credit will be granted for only one of the following: HEBR381 or JWST381. Critical study of Israeli culture with emphasis on literature, film, and art as sites of struggle over political and social meaning during times of cultural transformation. Focus on the historical development of Israeli identity and gender, in particular within the military and Zionist youth movements. Taught in Hebrew.

HEBR 382 Israeli Media (3) Prerequisite: HEBR314 or permission of instructor. Also offered as JWST382. Credit will be granted for only one of the following: HEBR382 or JWST382. Examination of traditional and new media genres in Israel today. Focus on the self-representation of Israeli society and the interaction between media, society, and culture. Taught in Hebrew.

HEBR 386 Experiential Learning (3-6) Prerequisite: Learning Proposal approved by the Office of Experiential Learning Programs, faculty sponsor, and student's internship sponsor. Junior standing.

HEBR 388 Language House Colloquium (1) Prerequisite: Residence in Language House. Repeatable to 8 credits. For students residing in the Language House Immersion Program. Focuses on the development of skills in the target language and acquiring the cultural knowledge of the countries that speak the target language.

HEBR 498 Special Topics in Hebrew (3) Repeatable to 6 credits if content differs.

HEBR 499 Independent Study in Hebrew (1-3) Prerequisite: permission of instructor. Repeatable to 6 credits if content differs. Independent study under faculty supervision.

HESP -- Hearing and Speech Sciences

HESP 120 Introduction to Linguistics (3) An introduction to the scientific study of natural language with focus on the basic concepts of phonology, syntax, semantics and pragmatics, with subsequent attention to the applied aspects of linguistic principles.

HESP 202 Introduction to Hearing and Speech Sciences (3) An introduction to communication sciences and disorders; a survey of the bases of normal speech, language and hearing ability, major forms of communicative disorders and their treatment.

HESP 300 Introduction to Psycholinguistics (3) Prerequisite: HESP202 with a grade of "C" or better, or permission of department. Recommended: HESP120 or LING200. An introduction to current theories of language and an investigation of their relationship to human communication behavior. Survey of the experimental literature relating to this question.

HESP 305 Anatomy and Physiology of the Speech Mechanism (3) Prerequisite: HESP202 with a grade of "C" or better, or permission of department. Anatomy, physiology, and neurology of speech mechanism.

HESP 311 Anatomy, Pathology and Physiology of the Auditory System (3) Prerequisite: HESP202 with a grade of "C" or better, or permission of department. Gross anatomy of the ear and pathways for transmission of sound energy through the peripheral and central auditory system. Causes, development and effects of pathological conditions contributing to temporary or chronic hearing impairments.

HESP 386 Experiential Learning (3-6) Prerequisite: permission of department. Junior standing.

HESP 388 Undergraduate Research Externship (1-3) Prerequisite: HESP202, HESP305, HESP300, HESP311 and permission of department. Sophomore standing. Off-campus research internship with departmental affiliates at National Institutes of Health and regional universities. Contact department chairman for openings and descriptions of eligible placements.

HESP 389 LEAP Classroom Internship (1-3) Prerequisite: HESP202 or equivalent, and permission of department. Recommended: HESP400. Repeatable to 6 credits if content differs. Participation in a language-based, literacy-rich preschool classroom for children with speech-language disorders. Students will learn behavior management techniques, curriculum planning and implementation, facilitation of play among children, data collection and teaching srategies.

HESP 400 Speech and Language Development in Children (3) Prerequisite: HESP300 with a grade of "C" (2.0) or better, or permission of department. Recommended: HESP120 or LING200. For HESP majors or by permission of department. Analysis of the normal processes of speech and language development in children.

HESP 402 Speech Pathology I (3) Prerequisite: HESP400 with a grade of "C" or better, or permission of department. Etiology, assessment and treatment of language and phonological disorders in children.

HESP 403 Introduction to Phonetic Science (3) Prerequisite: HESP305 with a grade of "C" (2.0) or better, or permission of department. For HESP majors or by permission of department. An introduction to physiological, acoustic and perceptual phonetics; broad and narrow phonetic transcription; current models of speech production and perception.

HESP 404 Speech Pathology II (3) Prerequisite: permission of department. Etiology, assessment and therapeutic management of phonation, resonance, and fluency disorders in children and adults.

HESP 406 Acquired Neurogenic Communication Disorders in Adults (3) Prerequisites: {HESP300 and HESP305} with a grade of "C" (2.0) or better or permission of department. For HESP majors or by permission of department. Survey of the dysarthrias and aphasias in adults from an interdisciplinary point of view.

HESP 407 Bases of Hearing Science (3) Prerequisite: HESP311 with a grade of "C" (2.0) or better or permission of department. For HESP majors only or by permission of department. Fundamentals of hearing, including the physics of sound, anatomy and physiology of peripheral and central auditory nervous system, psychophysical procedures used in measurement of auditory sensation and perception, and topics in psychological acoustics.

HESP 410 Organic Speech Disorders (3) Prerequisite: HESP305 with a grade of C (2.0) or better; or permission of department. Recommended: HESP403. For HESP majors only or permission of department. Credit will be granted for only one of the following: HESP410 or HESP498C. Formerly HESP498C. Overview of cleft palate, pediatric and adult swallowing disorders, pediatric cerebral palsy, including dysarthria/apraxia, and their effects on communication; treatment considerations.

HESP 411 Introduction to Audiology (3) Prerequisite: HESP311 with a grade of "C" (2.0) or better, or permission of department. For HESP majors or permission of department. An introduction to the field of audiology. Evaluation and remediation of hearing handicaps.

HESP 413 Aural Rehabilitation/Habilitation (3) Prerequisite: HESP311. Sophomore standing. The fundamental aspects of aural rehabilitation therapy for both adults and children are introduced to students. Class time will consist of lectures, discussions, and hands-on activities.

HESP 417 Principles and Methods in Speech-Language Pathology and Audiology (3) Prerequisites: HESP400, HESP411, and at least one of HESP402, HESP404, HESP406, or HESP408 with a grade of "C" (2.0) or better; or permission of department. For HESP majors or permission of department. Offered fall only. The principles underlying the treatment of speech, language and hearing disorders in children and adults.

HESP 418 Clinical Practice in Speech-Language Pathology and Audiology (3) Prerequisite: HESP417 with a grade of "C" or better, and permission of department. Repeatable to 6 credits. Supervised observation with some direct participation in clinical methods for the treatment of disorders of articulation, fluency, child and adult language; evaluation and habilitation/rehabilitation of hearing impaired children and adults.

HESP 420 Deafness and Sign Language (3) Credit will be granted for only one of the following: HESP498A or HESP420. An introduction to American Sign Language and Deaf Culture.

HESP 422 Neurological Bases of Human Communication (3) Prerequisite: HESP305 or permission of instructor. Credit will be granted for only one of the following: HESP498 or HESP422. Basic neurology as it pertains to anatomy and physiology substrates of speech and language.

HESP 423 Phonetics for Teachers of English as a Second Language (3) Credit will be granted for only one of the following: HESP498P or HESP423. An introduction to the phonetic and phonological system of standard North American English, materials and techniques in teaching pronunciation for teachers of English as a second language.

HESP 469 Honor Thesis Research (1-3) Prerequisite: Honor thesis advisor's approval. Repeatable to 6 credits if content differs. Student will develop thesis proposal, conduct research, analyze results, develop and defend final written document.

HESP 498 Seminar (3) Prerequisite: permission of department. Repeatable to 6 credits if content differs. Selected topics in human communication and its disorders.

HESP 499 Independent Study (1-3) Prerequisite: permission of department. Repeatable to 6 credits if content differs. A directed study of selected topics pertaining to human communication and its disorders.

HISP -- Historic Preservation

HISP 200 The Everyday and the American Environment (3) One hour of lecture and two hours of discussion/recitation per week. An introduction to the theories of the everyday within the context of the American built environment. Focuses primarily on the American experience of underrepresented, minority, and/or immigrant communities; both historical and contemporary. Attempts to challenge what is meant by American in describing the American everyday built environment.

HIST -- History

HIST 106 American Jewish Experience (3) Also offered as JWST141. Credit will be granted for only one of the following: HIST106 or JWST141. History of the Jews in America from colonial times to the present. Emphasis on the waves of migration from Germany and Eastern Europe; the changing nature of the American Jewish community and its participation in American social, economic and political life.

HIST 110 The Ancient World (3) Interpretation of select literature and art of the ancient Mediterranean world with a view to illuminating the antecedents of modern culture; religion and myth in the ancient near East; Greek philosophical, scientific, and literary invention; and the Roman tradition in politics and administration.

HIST 111 The Medieval World (3) The development of Europe in the Middle Ages; the role of religious values in shaping new social, economic, and political institutions; medieval literature, art and architecture.

HIST 112 The Rise of the West: 1500 - 1789 (3) History of early modern Europe. Development of the national consciousness of European peoples. Evolution of state power and bureaucracy, economic institutions, art, literature, science and religion.

HIST 113 Modern Europe: 1789 - Present (3) Evolution of modern nation states. Industrial-economic structure and demography. Emergence of modern secular society.

HIST 120 Islamic Civilization (3) Introduction to society and culture in the Middle East since the advent of Islam: as a personal and communal faith; as artistic and literary highlights of intellectual and cultural life; and as the interplay between politics and religion under the major Islamic regimes.

HIST 122 African Civilization to 1800 (3) History of Africa from earliest times to 1800. Topics of study include origins of African societies, Nile Valley civilization, medieval African states and societies, Islam, oral traditions, African slavery and the slave trade, and early African-European interactions.

HIST 123 Sub-Saharan Africa Since 1800 (3) Overviews early mid-19th-century changes in African societies, European conquest and African resistances in the late 19th-century, colonial states and societies, African nationalisms and decolonization and the independence era. Struggles over social, economic, and political changes are emphasized.

HIST 126 Jewish Civilization (3) Also offered as JWST121. Credit will be granted for only one of the following: HIST126 or JWST121. Formerly HIST105. Jewish history, culture, and society from Biblical times to the present.

HIST 156 History of the United States to 1865 (3) The United States from colonial times to the end of the Civil War. Establishment and development of American institutions.

HIST 157 History of the United States Since 1865 (3) The United States from the end of the Civil War to the present. Economic, social, intellectual, and political developments. Rise of industry and emergence of the United

States as a world power.

HIST 174 Introduction to the History of Science (3) Formerly HIST200. Major issues in the development of modern science. Specific examples of discoveries and theories from the viewpoint of theories of historical change, philosophies of science, and interaction of science with philosophy.

HIST 175 Science and Technology in Western Civilization (3) Key periods of change in science and technology; the causes and effects of these changes beginning with prehistory and ending with the current century.

HIST 208 Historical Research and Methods Seminar (3) For HIST majors only. Repeatable to 6 credits if content differs. Credit will be granted for only one of the following: HIST208 or HIST220. Formerly HIST220. Reading and research skills and methods. Research papers will be based on the topic of the seminar.

HIST 209 Selected Topics (3)

HIST 210 Women in America to 1880 (3) Also offered as WMST210. Credit will be granted for only one of the following: HIST210 or WMST210. An examination of the economic, family and political roles of colonial, slave, immigrant and frontier women in America from pre-industrial colonial period through the early stages of the 19th-century industrialization and urbanization.

HIST 211 Women in America Since 1880 (3) Also offered as WMST211. Credit will be granted for only one of the following: HIST211 or WMST211. An examination of women's changing roles in working class and middle class families, the effects of industrialization on women's economic activities and status, and women's involvement in political and social struggles including those for women's rights, birth control, and civil rights.

HIST 212 Women in Western Europe, 1750-Present (3) Also offered as WMST212. Credit will be granted for only one of the following: HIST212 or WMST212. An analysis of the economic, family, and political roles of European women from 1750 to the present. The effects of industrialization on women's work and status, the demographic parameters of women's lives, and women's participation in political events from market riots to suffrage struggles.

HIST 213 History of Sexuality in America (3) Two hours of lecture and one hour of discussion/recitation per week. Credit will be granted for only one of the following: HIST213 or HIST219O. Formerly HIST219O. Explores the social construction of sexualities from the first colonial settlement to the modern era in the United States. Analyzes the implications of these understandings for power relations in U.S History.

HIST 216 Introduction to the Study of World Religions (3) Survey of the history and development of major religions as a significant aspect of social and cultural history. Discusses major scholarly approaches to the study of religion.

HIST 219 Special Topics in History (3)

HIST 222 Immigration and Ethnicity in America (3) Two hours of lecture and one hour of discussion/recitation per week. Also offered as AAST222. Credit will be granted for only one of the following: AAST222, AAST298A, HIST219L or HIST222. Formerly HIST219L. The history of immigration and the development of diverse populations in the United States are examined. Topics include related political controversies, the social experiences of immigrants, ethnicity, generations, migration, inter-group relations, race and diversity in America culture.

HIST 224 Modern Military History, 1494-1815 (3) Survey of the military history of Europe through an examination of the economic, financial, strategic, tactical, and technological aspects of the development of military institutions and warfare from the dynastic wars of the Valois and Habsburgs to the national wars of the French Revolution and Empire.

HIST 225 Modern Military History, 1815-Present (3) The military history of Europe through an examination of the economic, financial, strategic, tactical, and technological aspects of the development of military institutions and warfare from the Congress of Vienna in 1815 to the present.

HIST 232 The Historical Development of London (3) Prerequisite: By permission of Study Abroad Office only. Not open to students who have completed GNED288. Credit will be granted for only one of the following: GNED288 and HIST232. Formerly GNED288. Study Abroad in London, England. The history of London, beginning with its foundation by the Romans, continuing with the city's progressive political and cultural domination of England, the British Isles and the British Empire, and concluding with a look at the city in the 20th Century. Students look at London through the eyes of contemporaries and historians while forming their own impressions of the city during course-based walking tours of the city.

HIST 233 Empire! The British Imperial Experience 1558-1997 (3) Two hours of lecture and one hour of discussion/recitation per week. Credit will be granted for only one of the following: HIST219P or HIST233. Formerly HIST219P. Britain's empire from the mid-sixteenth century to the late twentieth century, focusing on the encounter between Britain and indigenous peoples. Topics include the origins of British imperialism in Ireland and North America, the slave trade, the East India Company and India, women in Empire, transportation and the making of Australia, sex in empire, missionaries, racial theories and decolonizaiton.

HIST 234 History of Britain to 1485 (3) British history from Roman times to the 15th century. The Anglo-Saxon, Scandinavian and Norman invasions; the coming of Christianity; Magna Carta, the development of Parliament, legal institutions and the Common Law; the decline of medieval kingship.

HIST 235 History of Britain 1461 to 1714 (3) British history from the War of the Roses to the Hanoverian succession; Yorkist and Tudor society and politics; the Renaissance and Reformation in England, Henry VIII through Elizabeth I; 17th-century crises and revolutions; intellectual and cultural changes; the beginnings of empire; the achievement of political and intellectual order.

HIST 236 History of Britain 1688 to Present (3) British history from the Glorious Revolution of 1688 to the present. The revolution of 1688; the structure of 18th-century society and politics; economic and social change in the Industrial Revolution; 19th and 20th-century political and social reform; imperialism; the impact of the First and Second World Wars on British society.

HIST 237 Russian Civilization (3) An overview of Russian history stressing the main lines of development of the Russian state and the evolution of Russian culture to the present day.

HIST 240 Europe in the Twentieth Century (3) Not open to students who have completed HIST337. Credit will be granted for only one of the following: HIST240 or HIST337. Formerly HIST337. Political, cultural and economic developments in 20th-century Europe.

HIST 250 Latin American History I (3) Latin America from pre-Columbian Indian cultures to the beginnings of the wars for independence (ca. 1810), covering cultural, political, social, and economic developments.

HIST 251 Latin American History II (3) The political culture of the republics of Latin America. Themes include nation building, modernization, race relations, economic development, gender, reform and revolution, and relations between the United States and Latin America.

HIST 254 African-American History to 1865 (3) Survey of the principal developments in the history and culture of the peoples of African descent in colonial North America and the United States to 1865. Examines the African past, the Atlantic slave trade, variation in slavery, the growth of free black communities, the transformations of families and cultural forms, and patterns of resistance.

HIST 255 African-American History, 1865 - Present (3) An introductory course in the African-American experience in the United States from 1865 to present. Topics include the aftermath of the Civil War on US race relations, the rise of segregation, northern migration, World War I and II, Civil Rights Movements, and the Black Power Movement.

HIST 265 Social and Cultural History of Modern America (3) American social history from the Civil War to the present. Examination of the social interactions accompanying the rise of male-dominated, business-oriented urban culture. Concentration on the major social forces clashing and cooperating to produce the modern United States: "business republicanism"; urban workers; intellectuals; rural populists; immigrants (especially Jewish); Black Americans; and struggling women liberators. The crosscurrents of a "free society" wrestling with contradictions of the democratic experiment.

HIST 266 The United States in World Affairs (3) A study of the United States as an emerging world power and the American response to changing status in world affairs. Emphasis on the relationship between internal and external development of the nation.

HIST 275 Law and Constitutionalism in American History (3) An exploration of the relationship between law and the social and political order between 1750 and 1950. Discussion of important historical issues--religious liberty, economic development, slavery and the Civil War, the political economy of industrialization, the creation of the modern state--from a legal and constitutional perspective.

HIST 280 Reconstructing the Civilization of Ancient Mesopotamia (3) Also offered as JWST227. Not open to students who have completed HEBR440. Credit will be granted for only one of the following: HIST280 or JWST227.

Formerly HEBR440. History and culture of Ancient Mesopotamia, as reconstructed from archaeology, language, and texts of the region. Emphasis on culture, literature, religion, and institutions.

HIST 281 The Rabbinic Movement: History and Culture (3) Also offered as JWST230. Credit will be granted for only one of the following: HIST281 or JWST230. Introduction to the Rabbinic movement and its history, first to seventh century CE. Survey of the essential texts of ancient Rabbinic literature, both halakhic (legal) and aggadic (non-legal).

HIST 282 History of the Jewish People I (3) Also offered as JWST234. Credit will be granted for only one of the following: HIST282 or JWST234. Political, economic, social and cultural development within Jewish history from the Biblical period to the late Middle Ages. Special attention to the emergence of Rabbinic Judaism and its subsequent encounter with medieval Christian and Islamic civilizations.

HIST 283 History of the Jewish People II (3) Credit will be granted for only one of the following: HIST283, HIST283H, JWST235, or JWST235H. Political, economic, social and cultural development within Jewish history from the end of Middle Ages to the present. Special attention to twentieth century developments including the Nazi holocaust and its aftermath, the Zionist movement and the creation of the State of Israel; rise of the contemporary American Jewish community.

HIST 284 East Asian Civilization I (3) An interdisciplinary survey of the development of East Asian cultures. An historical approach drawing on all facets of East Asian traditional life, to gain an appreciation of the different and complex cultures of the area.

HIST 285 East Asian Civilization II (3) A survey of the historical development of modern Asia since 1700. Primarily concerned with the efforts of East Asians to preserve their traditional cultures in the face of Western expansion in the 18th and 19th centuries, and their attempts to survive as nations in the 20th century.

HIST 286 The Jew and the City through the Centuries (3) Also offered as JWST275. Credit will be granted for only one of the following: HIST286 or JWST275. Jewish urban experience from ancient times to the present. Public space and private space. The city and the sacred. Jewish ghettos and quarters. The struggle over modern Jerusalem.

HIST 299 Directed Research (1-3) Prerequisite: permission of department. Repeatable to 9 credits if content differs. Closely guided research in primary sources for students currently enrolled in selected 100- or 200-level survey in the Department of History.

HIST 306 History of Religion in America (3) Prerequisite: HIST156, HIST157, HIST210, HIST211, HIST213, HIST216, HIST254, or HIST255; or permission of instructor. A history of religion, religious movements, and churches in America from the early Colonial period to the present, with special attention to the relation between church and society.

HIST 307 The Holocaust of European Jewry (3) Also offered as JWST345. Credit will be granted for only one of the following: HIST307 or JWST345. Roots of Nazi Jewish policy in the l930's and during World War II: the process of destruction and the implementation of the "final solution of the Jewish problem" in Europe, and the responses made by the Jews to their concentration and annihilation.

HIST 309 Proseminar in Historical Writing (3) For HIST majors only. Discussions and research papers designed to acquaint the student with the methods and problems of research and presentation. Students will be encouraged to examine those phases of history which they regard as their specialties. Restricted to history majors. Non-majors admitted by permission of the department on a space-available basis.

HIST 310 History of South Africa (3) Not open to students who have completed HIST419E. Formerly HIST419E. Explores the roots of Apartheid and nonracialism from precolonial times to the present: the social history of work and identity, the rise of kingdoms (Zulu, Sotho), conquest and colonial administration, urban and rural mass politics, gender relations, and the transition to democracy.

HIST 314 Crisis and Change in the Middle East and Africa (3) Prerequisite: one course in history. Major historical crises, controversies, and readjustments in the Middle East and Africa.

HIST 319 Special Topics in History (3) Repeatable to 6 credits if content differs.

HIST 320 Early Christianity: Jesus to Constantine (3) Prerequisite: one course in ancient history at the 200 level. Also offered as JWST331. Credit will be granted for only one of the following: HIST320 or JWST331. Social and religious history of early Christianity from its origins in the first century to the reign of Constantine.

HIST 321 Biblical History and Culture (3) Also offered as JWST324. Not open to students who have completed HEBR333. Credit will be granted for only one of the following: HIST321 or JWST324. Formerly HEBR333. Study of the political, social and religious development of the Jewish nation from its inception to its return from exile in Babylonia around 536 C.E. Focus on biblical texts, archaeological finds, and source materials from neighboring cultures to reconstruct political history and the development of religious concepts.

HIST 324 Classical Greece (3) The ancient Greeks from Homer to Socrates, 800-400 B.C. Society and religion of the city-state, the art and literature of Periclean Athens, the Peloponnesian War, and the intellectual circle of Socrates.

HIST 325 Alexander the Great and the Hellenistic Age (3) Prerequisite: HIST110 or HIST111; or permission of instructor. History of the Greeks 400-30 B.C.: Alexander and the changes he wrought in the Mediterranean world; the rise of monarchies and leagues; new directions in religion, art, literature, and science; and Hellenization of the Near East, including the Jews.

HIST 326 The Roman Republic (3) Prerequisite: HIST110 or HIST111; or permission of instructor. Ancient Rome 753-44 B.C., from its founding to the assassination of Julius Caesar. Rome's conquest of the Mediterranean world, the social and political forces which brought it about, and the consequent transformation and decline of the republic.

HIST 327 The Roman Empire (3) Roman history from Augustus to Heraclius, 44BC-641AD: The Imperial court and government; the diversity of culture in provinces and cities and the progress of Romanization; Roman religion and its transformation in late antiquity; the Roman army and defense of the frontiers.

HIST 328 Selected Topics in History (3) Repeatable to a maximum of 9 credits combined in HIST319, HIST328, or HIST329.

HIST 329 Special Topics in History (1-3) Repeatable to a maximum of 9 credits combined in HIST319, HIST328, or HIST329.

HIST 330 Europe in the Making: The Early Medieval West (A.D. 300-1000) (3) From one empire to another: Rome to Charlemagne. This period is approached as a crucible in which classical, Christian, and Germanic elements merged, yielding new experimental syntheses. This course will deal with issues of authority, cultural trends, and the formation of group solidarity.

HIST 331 Europe in the High Middle Ages: 1000-1250 (3) Medieval civilization in the 11th through 13th centuries. Emphasis on cultural and political developments of the high Middle Ages with study of the principal sources of medieval thought and learning, art and architecture and political theory. Recommended as a sequel to HIST330.

HIST 332 Renaissance Europe (3) Prerequisite: HIST111 or HIST112; or permission of instructor. Intellectual developments in Italy and Northern Europe from 1300 to 1550 and their influence on the arts and religion; social and economics trends, including the rise of the commercial economy in cities; the family and the role of women in society; expansion of Europe overseas and the beginnings of colonization; emergence of the state and consequent changes in political theory.

HIST 333 The European Reformations (3) Prerequisite: HIST111, HIST112, or permission of instructor. Examination of developments in European religion between 1450 and 1700; the late-medieval Church and its critics; rise of Protestant thought in Germany and its spread throughout Europe; reform efforts in the Catholic Church; religious wars and violence and their impact on state and society; consequences of religious reform in society and its impact on the family and women.

HIST 336 Europe in the 19th Century, 1815-1919 (3) The political, economic, social, and cultural development of Europe from the Congress of Vienna to the First World War.

HIST 340 Nationalism and Communism in Eastern Europe (3) National states, ethnic conflict and communist parties across the 20th century, including the collapse of the Soviet bloc regimes and the break-up of Yugoslavia.

HIST 341 History of Anti-Semitism (3) The historical development of anti-Semitism in its European context. Anti-Semitism both as a set of ideas and as a political movement from the ancient era to the present, with emphasis on the modern era.

HIST 342 Fascism: Theory and Practice (3) The origins and history of fascism in Europe, 1918-1945. Emphasis divided between the industrialized (or industrializing) nations and the largely agrarian countries of Europe. The rise of fascism in other parts of the world.

HIST 344 Revolutionary Russia (3) An exploration of the roots, dynamics and consequences of the Russian Revolution of 1917. Major interpretations of the fall of tsarism, social and political forces at play, Leninism and Stalinism.

HIST 352 America in the Colonial Era, 1600-1763 (3) Prerequisite: HIST156, HIST210, HIST213, or HIST254; or permission of instructor. The founding of the English colonies in America and their European backgrounds, the reasons for the instability of colonial society to 1689 and the emergence of stable societies after 1689; the development of colonial regionalism, political institutions, social divisions, the economy, religion, education, urban and frontier problems in the eighteenth century.

HIST 353 America in the Revolutionary Era, 1763-1815 (3) Prerequisite: HIST156, HIST210, HIST213, HIST254, or HIST275; or permission of instructor. The background and course of the American Revolution and early nationhood through the War of 1812. Emphasis on how the Revolution shaped American political and social development, the creation of a new government under the Constitution, and the challenges facing the new nation.

HIST 354 Ante-Bellum America 1815-1861 (3) Prerequisite: HIST156, HIST210, HIST213, HIST222, HIST254, or HIST275; or permission of instructor. Traces how the strong nationalism after the War of 1812 transformed into the sectionalism that led to Civil War. The course concentrates on the controversies over slavery and other issues contributing to North- South antagonism, including Jacksonian democracy, capitalism, racism, immigration, manifest destiny and religious, social, and intellectual movements, each of which produced its own social tendencies and tensions.

HIST 355 Civil War and the Rise of Industrialization, 1860-1900 (3) Prerequisite: HIST156, HIST157, HIST210, HIST213, HIST222, HIST254, HIST255, or HIST275; or permission of instructor. Credit will be granted for only one of the following: HIST355 or HIST364. Civil War, sectional and class conflicts and their impact on American life and institutions from the beginning of the Civil War through the Gilded Age; social, economic, and political reconstruction of the Union; industrialization, urbanization, and technological changes.

HIST 356 Emergence of Modern America, 1900-1945 (3) Prerequisite: HIST157, HIST211, HIST213, HIST222, HIST255, HIST265, or HIST275; or permission of instructor. The emergence of modern institutions and identities, 1900-1945. These institutions may include corporate enterprises and the welfare state; identities include homosexuality, the New Woman and the New Negro.

HIST 357 Recent America: 1945-Present (3) Prerequisite: HIST157, HIST211, HIST213, HIST222, HIST255, HIST265, or HIST275; or permission of instructor. American history from the inauguration of Harry S. Truman to the present with emphasis upon politics and foreign relations, but with consideration of special topics such as radicalism, conservatism, and labor.

HIST 360 Women and the Civil Rights Movement (3) Twentieth century U.S. civil rights movement from the vantage point of women, considering both women's involvement in the legal campaigns and political protests and the impact of civil rights struggles on women's condition, status, and identity.

HIST 370 Jews and Judaism in Antiquity I: Sixth Century BCE through the (3) First Century CE Also offered as JWST325. Credit will be granted for only one of the following: HIST370 or JWST325. Political, social, and religious history of the Jews from the Persian period to the Judean revolt of 66-70 CE. Special attention to the rise of sectarian and revolutionary movements.

HIST 371 Jews and Judaism in Antiquity II: First through Seventh Century (3) Recommended: HIST370. Also offered as JWST326. Credit will be granted for only one of the following: HIST371 or JWST326. Political, social, and religious history of the Jews from the destruction of the Jerusalem Temple in 70 CE to the Muslim conquests. Special attention to the political transformation of Judaism under late Roman Christianity, and the rise of the Rabbinic movement.

HIST 373 Jews in Early Modern Times 1450-1750 (3) Recommended: HIST282/JWST234. Also offered as JWST333. Not open to students who have completed JWST333, HIST418C/JWST419C (Fall 2006, Fall 2004) or HIST419C/JWST419Y (Spring 2001). Credit will be granted for only one of the following: JWST333, HIST373, HIST418C/JWST419C (Fall 2006, Fall 2004) or HIST419C/JWST419Y (Spring 2001). Formerly HIST419C. Emergence of new powerful population centers, religious and cultural creativity, new forms of community, and radical messianic movements.

HIST 374 Modern Jewish History I: The Road to Emancipation, 1650-1870 (3) Also offered as JWST343. Credit will be granted for only one of the following: HIST374 or JWST343. Social, political, economic, and cultural change in the Jewish world since 1650. Emphasis on emancipation, assimilation, and new forms of Jewish identity in Western and Eastern European Jewry from the 17th to the 20th centuries.

HIST 375 Modern Jewish History II: World Jewry Since 1870 (3) Also offered as JWST344. Credit will be granted for only one of the following: HIST375 or JWST344. Continuation of HIST374.

HIST 376 History of Zionism and the State of Israel (3) Also offered as JWST342. Credit will be granted for only one of the following: HIST376 or JWST342. Ideological and political factors leading to the establishment of a secular Jewish state in 1948; Zionist thought of Herzl, Ahad Ha-am, the socialist and religious Zionists, and the revisionists; diplomatic activities; Arab-Israel conflict; post-1948 Israeli society.

HIST 380 American Relations With China and Japan, 1740-Present (3) American political, economic, and cultural relations with China and Japan from the American colonial era to the present. Diplomacy and power politics; Christian missions; immigration and exclusion; overseas education; art and literature; trade, investment, technology.

HIST 386 Experiential Learning (3-6) Prerequisite: permission of department. Junior standing. The History Department's Internship program. Pre-professional experience in historical research, analysis and writing in a variety of work settings.

HIST 392 History of the Contemporary Middle East (3) Modernization, westernization and secularization in a traditional society; the rise of sovereign nation-states; shifting political and economic power groupings within a regional and global context.

HIST 395 Honors Colloquium I (3) Prerequisite: permission of department. For HIST majors only. History and theory: the conceptual underpinnings of the historical discipline. Students evaluate several contrasting theories of history. Prerequisite for other honors courses.

HIST 396 Honors Colloquium II (3) Prerequisite: HIST395 or permission of department. For HIST majors only. Uses a seminar approach to examine a major problem of historical interpretation across two or more diverse cultures in different periods. Topics vary and include: religion and society, the city in history, gender, slavery and emancipation, and modernization.

HIST 398 Honors Thesis (3)

HIST 401 The Origins of Modern Science from Aristotle to Newton (3) Prerequisite: Any course that satisfies CORE Physical Sciences requirement. Introduction to the history of physical science, focusing on the transformation in our understanding of the world during the 16th and 17th centuries. Ancient and medieval conceptions of the universe, physical theories, and mathematical sciences in Europe, Asia, and Middle East, the transition from geocentric to heliocentric astronomy through the work of Copernicus, Kepler, and Galileo, interactions between science and religion as exemplified by the Trial of Galileo, new laws of mechanics, Newton's discoveries and theories, and the establishment of the Newtonian worldview.

HIST 402 The Development of Modern Physical Science: From Newton to Einstein (3) Prerequisites: MATH110; and PHYS112 or PHYS117 or equivalent. The history of physics in the 18th and 19th centuries, including connections with mathematics, technology, chemistry and planetary science. Emphasis on internal technical developments in physical theory, with discussion of experimental, philosophical and sociological aspects. This is the second part of a three-semester sequence (HIST401, HIST402, PHYS490); each part may be taken independently of the others.

HIST 404 History of Modern Biology (3) The internal development of biology in the 19th and 20th-centuries, including evolution, cell theory, heredity and development, spontaneous generation, and mechanism-vitalism controversies. The philosophical aspects of the development of scientific knowledge and the interaction of biology with chemistry and physics.

HIST 405 Environmental History (3) An introduction to the key issues and methods of environmental history. The scope of the subject is discussed, as well as its relationship with other disciplines, such as ecology, anthropology, and geography. A primary focus is environmental change in history with emphasis on the American experience.

HIST 406 History of Technology (3) Not open to students who have completed HIST407 prior to Fall Semester, 1989. The changing character of technology in modern history, beginning with the Middle Ages. Concentrates on the Industrial Revolution and its aftermath, the nature of technological knowledge and the sources of technological change.

HIST 407 Technology and Social Change in History (3) Students with HIST407 prior to Fall Semester 1989 must have permission of department to enroll in this course. Social consequences of technological innovations and the ways in which societies have coped with new technologies.

HIST 408 Senior Seminar (3) For HIST majors only. Repeatable to 6 credits if content differs. A capstone course for history majors, designed to increase historical knowledge and the ability to analyze texts and arguments. Topics will focus on the literature of a particular field and primary-source research.

HIST 410 Introduction to Archives I (3) Prerequisite: permission of department. Corequisite: HIST411. History of the basic intellectual problems relating to archives and manuscript repositories; emphasis on problems of selection, access, preservation, inventorying and editing as well as the variety of institutions housing documents.

HIST 415 History of European Ideas II (3) Prerequisite: HIST113 or HIST240; or permission of instructor. A continuation of HIST414 emphasizing 19th and 20th-century thought.

HIST 418 Jews and Judaism: Selected Historical Topics (3) Prerequisite: HIST106, HIST126, HIST281, HIST282, HIST283, or HIST286; or permission of instructor. Repeatable to 6 credits if content differs.

HIST 419 Special Topics in History (3) Repeatable to 9 credits if content differs.

HIST 425 Imperial Russia (3) The rise and fall of the Russian Empire, Peter the Great to the collapse of tsarism in revolution. Emphasis on the evolution of autocracy, social groups, national identities, and cultural change.

HIST 426 Age of Industry: Britain 1760 to 1914 (3) An economic, social, political and cultural analysis of Britain in the age of its industrial supremacy. The nature of the first industrial revolution; the emergence of modern social classes; the cultural impact of industrialization; politics and society in the early and mid-19th-century; Victorianism and its critics; imperialism and politics; high and low culture; the rise of labor; social and political tensions 1910-1914.

HIST 427 Age of Decline: Britain 1914 to Present (3) British society since the First World War. The social, cultural, economic and political impact of the First World War; labor and politics in the 1920s and 1930s; the inter-war Depression, appeasement and foreign policy; the social impact of the Second World War; the welfare state and nationalization of industry; the dissolution of Empire; the emergence of a consumer society; social criticism in the 1950s; the economic and political problems of the 1960s and 1970s.

HIST 428 Selected Topics in History (3) Repeatable to a maximum of 9 credits combined in HIST319, HIST328, or HIST429.

HIST 429 Special Topics in History (3) Repeatable to a maximum of 9 credits combined in HIST319, HIST328, or HIST429.

HIST 430 Tudor England (3) An examination of the political, religious and social forces in English life, 1485-1603, with special emphasis on Tudor government, the English reformation and the Elizabethan era.

HIST 431 Stuart England (3) An examination of the political, religious and social forces in English life, 1603-1714, with special emphasis on Puritanism and the English revolutions.

HIST 436 French Revolution and Napoleon (3) The causes and course of the French Revolution with emphasis on the struggle among elites, popular intervention, the spread of counterrevolution, the Terror as repression and popular government, the near collapse of the Republic, and the establishment and defeat of dictatorship.

HIST 437 Modern France from Napoleon to DeGaulle (3) The changing political and cultural values of French society in response to recurrent crises throughout the 19th and 20th centuries. Students should have had some previous survey of either Western civilization or European history.

HIST 440 Germany in the Nineteenth Century, 1815-1914 (3) Examines the social, economic, cultural, and political development of the major German states before 1871 and of Germany, excluding Austria, from 1871 to 1914.

HIST 441 Germany in the Twentieth Century: 1914-Present (3) Prerequisite: HIST113 or HIST240; or permission of instructor. Germany's aims and policies during World War I, its condition and policies in the inter-war period, the rise of National Socialism, World War II, and post-war Germany.

HIST 442 Twentieth-Century Russia (3) Russia and the Soviet Union from the fall of the tsars to the post-communist present. Impact of Leninism, Stalinism and Soviet Communism on state, society, culture and nationality.

HIST 443 Modern Balkan History (3) Prerequisite: HIST113 or HIST240; or permission of instructor. A political, socioeconomic, and cultural history of Yugoslavia, Bulgaria, Romania, Greece, and Albania from the breakdown of Ottoman domination to the present. Emphasis is on movements for national liberation during the 19th-century and on approaches to modernization in the 20th-century.

HIST 450 Economic History of the United States to 1865 (3) Prerequisite: HIST156, HIST210, HIST213, HIST222, HIST254, HIST265, HIST275, or ECON311; or permission of instructor. The development of the American economy from Columbus through the Civil War.

HIST 451 Economic History of the United States After 1865 (3) Prerequisite: HIST157, HIST211, HIST213, HIST222, HIST255, HIST265, or HIST275; or permission of instructor. The evolution of the U.S. economy from the end of the Civil War to the present; emphasis on macroeconomic policy making and relations among business, government and organized labor.

HIST 452 Diplomatic History of the United States to 1914 (3) American foreign relations from the American Revolution to the beginning of World War I. International developments and domestic influences that contributed to American expansion in world affairs. Analyses of significant individuals active in American diplomacy and foreign policy.

HIST 453 Diplomatic History of the United States from 1914 (3) American foreign relations in the 20th-century. World War I, the Great Depression, World War II, the Cold War, the Korean War, and Vietnam. A continuation of HIST452.

HIST 454 Constitutional History of the United States: From Colonial Origins (3) to 1860 The interaction of government, law, and politics in the constitutional system. The nature and purpose of constitutions and constitutionalism; the relationship between the constitution and social forces and influences, the way in which constitutional principles, rules, ideas, and institutions affect events and are in turn affected by events. The origins of American politics and constitutionalism through the constitutional convention of 1787. Major constitutional problems such as the origins of judicial review, democratization of government, slavery in the territories and political system as a whole.

HIST 455 Constitutional History of the United States: Since 1860 (3) American public law and government, with emphasis on the interaction of government, law, and politics. Emphasis on the political-constitutional system as a whole, rather than simply the development of constitutional law by the Supreme Court. Major crises in American government and politics such as Civil War, Reconstruction, the 1890s, the New Deal era, the civil disorders of the 1960s.

HIST 456 History of American Culture and Ideas to 1865 (3) The culture and ideas that have shaped American society and character from the first settlements to the Civil War.

HIST 457 History of American Culture and Ideas Since 1865 (3) Prerequisite: HIST157, HIST211, HIST213, HIST222, HIST255, HIST265, or HIST275; or permission of instructor. A continuation of HIST456, from the Civil War to the present.

HIST 460 History of Labor in the United States (3) Prerequisite: HIST156, HIST157, HIST210, HIST211, HIST222, HIST254, HIST255, HIST265, or HIST275; or permission of instructor. The American working class in terms of its composition; its myths and utopias; its social conditions; and its impact on American institutions.

HIST 461 Blacks in American Life: 1865 to Present (3) Prerequisite: HIST157, HIST210, HIST211, HIST222, HIST254, HIST255, HIST265, or HIST275; or permission of instructor. The role of the Black in America since slavery, with emphasis on 20th-century developments: migration from farm to city; growth of the civil rights movement; the race question as a national problem.

HIST 462 The United States Civil War (3) Prerequisite: HIST156, HIST210, HIST213, HIST222, HIST254, or HIST275; or permission of instructor. Causes of the Civil War; sectional politics and secession; resources and strategy of the Confederacy and the Union; changing character of the war; emancipation and its consequences: economic, social and political conditions on the home front; and the wartime origins of Reconstruction. Not a military history course; little attention to the tactics of particular battles.

HIST 463 History of the Old South (3) The golden age of the Chesapeake, the institution of slavery, the frontier South, the antebellum plantation society, the development of regional identity and the experiment in independence.

HIST 464 The North Atlantic World in the Early Modern Period, 1600-1800 (3) Not open to students who have completed HIST260. The American Colonies and the new American nation: their European heritage and influences.

HIST 471 History of Brazil (3) Prerequisite: HIST250, HIST251, LASC234, or LASC235; or permission of instructor. The history of Brazil with emphasis on the national period.

HIST 472 History of the Argentine Republic (3) Concentration upon the recent history of Argentina with emphasis upon the social and economic development of a Third World nation.

HIST 473 History of the Caribbean (3) Offers a concise introduction to the history of the Caribbean regions from the Columbian voyages to the 20th-century. Special emphasis is given to the dynamics of local social and cultural formations within the framework of the political and economic history of the Atlantic world.

HIST 474 History of Mexico and Central America I (3) Prerequisite: HIST251, LASC234, or LASC235; or permission of instructor. History of Mexico and Central America, beginning with the Pre-Spanish Indian cultures and continuing through European contact, conquest, and colonial dominance, down to the beginning of the Mexican War for Independence in 1810.

HIST 475 History of Mexico and Central America II (3) Prerequisite: HIST251, LASC234, or LASC235; or permission of instructor. A continuation of HIST474 with emphasis on the political development of the Mexican nation.

HIST 480 History of Traditional China (3) China from earliest times to 1644 A.D. Emphasis on the development of traditional Chinese culture, society, and government.

HIST 481 A History of Modern China (3) Modern China from 1644 to the People's Republic of China. Emphasis on the coming of the West to China and the various stages of the Chinese reaction.

HIST 482 History of Japan to 1800 (3) Traditional Japanese civilization from the age of Shinto mythology and introduction of continental learning down to the rule of military families, the transition to a money economy, and the creation of a townsmen's culture. A survey of political, economic, religious, and cultural history.

HIST 483 History of Japan Since 1800 (3) Japan's renewed contact with the Western world and emergence as a modern state, industrial society, and world power, 1800-1931; and Japan's road to war, occupation, and recovery, 1931 to the present.

HIST 484 Chinese Cultural Revolution (3) Recommended: HIST285 or HIST481. Credit will be granted for only one of the following: HIST419G or HIST484. Formerly HIST419G. Examines the cultural origins, experience, and results of the Cultural Revolution in China.

HIST 491 History of the Ottoman Empire (3) Survey of the Ottoman Turkish Empire from 1300 A.D. to its collapse during World War I. Emphasis on the empire's social and political institutions and its expansion into Europe, the Arab East and North Africa.

HIST 492 Women and Society in the Middle East (3) Recommended: prior coursework in Middle East studies or gender studies. Also offered as WMST456. Credit will be granted for only one of the following: HIST492 or WMST456. Examines the customs, values and institutions that have shaped women's experience in the Middle East in the past and in the contemporary Middle East.

HIST 493 Victorian Women in England, France, and the United States (3) Also offered as WMST453. Credit will be granted for only one of the following: HIST493 or WMST453. Examines the lives of middle and upper-class women in England, France, and the United States during the Victorian era. Topics include gender roles, work, domesticity, marriage, sexuality, double standards, and women's rights.

HIST 494 Women in Africa (3) The place of women in African societies: the role and function of families; institutions such as marriage, birthing, and child-rearing; ritual markers in women's lives; women in the work place; women's associations; women's health issues; measures designed to control women's behavior; women and development.

HIST 495 Women in Medieval Culture and Society (3) Also offered as WMST455. Credit will be granted for only one of the following: HIST495 or WMST455. Medieval women's identity and cultural roles: the condition, rank and rights of medieval women; their access to power; a study of women's writings and the constraints of social constructs upon the female authorial voice; and contemporary assumptions about women.

HIST 496 Africa Since Independence (3) Analysis of socio-political and econo-political changes in Africa since approximately 1960; development of class structures, the role of the military, personal rule and the patrimonial state; decline of party politics and participatory politics. Discussion of changes in economic policies, policies with respect to rural communities, and their relationship to the state and decision-making.

HIST 497 Islam in Africa (3) The introduction of Muslims and Islam into Africa from approximately the 8th to 19th-century. Impact of Islam on a regional-cultural basis, as well as Islam in state development and in political theory. The impact of Islam on social structures, e.g., domestic African slavery. Role of Islam in resistance movements against imperialism and colonization, and the place of Islam in independence and post-independence movements.

HIST 499 Independent Study (1-3) Prerequisite: permission of department. Repeatable to 6 credits.

HLSA -- Health Services Administration

HLSA 287 Adult Health and Development Program (3) Not open to students who have completed HLTH487. Credit will be granted for only one of the following: HLHP287, HLTH487, HLSA287, or SPHL287. Formerly SPHL287. Application of gerontological health and well-being theories in a one-to-one interaction with older institutionalized and non-institutionalized adults. Students act as "coaches" with adults, while learning about the historical and cultural aspects of aging and old age, and their implications for assisting elderly adults.

HLTH -- Health

HLTH 105 Science and Theory of Health (2) The scientific and philosophical bases for various theories of health, including health, wellness, individual control and limitations of health status, and holistic health.

HLTH 106 Drug Use and Abuse (3) An interdisciplinary analysis of contemporary drug issues and problems. The course will examine physiological, psychological, social, philosophical, historical, legal and health aspects of drug use and abuse. Special attention will be focused on those general motivations for drug use that attend life on the college campus.

HLTH 130 Introduction to Public and Community Health (3) Not open to non-majors with more than 60 credits. Not open to students who have completed HLTH105. Credit will be granted for only one of the following: HLTH105 or HLTH130. Formerly HLTH105. An introduction to the theory and practice of public and community health. The influence of public health professionals on the past, present, and future health status of society through the examination of critical health issues will be described. Programming models, theories and policy development are included.

HLTH 140 Personal and Community Health (3) Meaning and significance of physical, mental and social health as related to the individual and to society; important phases of national health problems; constructive methods of promoting health of the individual and the community.

HLTH 150 First Aid and Emergency Medical Services (2) Lecture, discussion and practice to train students in cardiopulmonary resuscitation (CPR) for adults, children and infants. Students will also learn first aid skills related to hemorrhage control, care for musculoskeletal injuries and care for sudden illnesses. Upon successful completion of the course, students will be awarded American Red Cross CPR and first aid certification.

HLTH 200 Introduction to Research in Community Health (3) Prerequisite: permission of department. An overview of specific components and steps involved in the community health research process. Content includes, foundations of research, sampling, measurement design, and analysis in a community context.

HLTH 230 Introduction to Health Behavior (3) Pre- or corequisite: HLTH130. For HLTH majors only. Psychological, social psychological, and sociological approaches to the following health areas: development of health attitudes and behavior, patient-provider interaction and the organization of health care.

HLTH 285 Controlling Stress and Tension (3) Health problems related to stress and tension. Analysis of causative psychosocial stressors and intervening physiological mechanisms. Emphasis on prevention and control of stress through techniques such as biofeedback, meditation and neuromuscular relaxation.

HLTH 289 Topical Investigations (1-3) Repeatable to 6 credits if content differs. Independent study by an individual student or an experimental course in special areas of knowledge not covered by regularly scheduled courses.

HLTH 371 Communicating Safety and Health (3) The communication and evaluation of safety and health information. Emphasis on various types of communications and recipient factors which contribute to their success or failure.

HLTH 377 Human Sexuality (3) The biological and developmental aspects of human sexuality; the psychological and emotional aspects of sexual behavior; sexual identity; the historical, cultural, social, linguistic, legal and moral forces affecting sexual issues; the importance of communication, disclosure and intimacy in interpersonal relationships; and research trends in the area of human sexuality.

HLTH 380 Peer Education: Alcohol and Other Drugs (3) Two hours of lecture and three hours of laboratory per week. Prerequisite: HLTH106; and permission of department. Peer training dealing with drug information and abuse to facilitate workshops in various outreach locations (dorms, Greek system, classrooms).

HLTH 381 Peer Education: Stress Management (3) Two hours of lecture and three hours of laboratory per week. Prerequisite: HLTH285; and permission of department. Peer training in different forms of stress management to facilitate workshops in various outreach locations (dorms, Greek system, classes).

HLTH 382 Peer Education: Sexuality and Communication (3) Two hours of lecture and three hours of laboratory per week. Prerequisite: HLTH377; and permission of department. Peer training in communication and issues of sexuality to facilitate workshops in various outreach locations (dorms, Greek system, classes).

HLTH 383 Peer Education: Reproductive Health (3) Two hours of lecture and three hours of laboratory per week. Prerequisite: HLTH377; and permission of department. Peer training in methods of birth control, sexually transmitted disease and AIDS education to facilitate workshops in the student Health Center and various outreach locations (dorms, Greek system, classes).

HLTH 386 Experiential Learning (3-6) Prerequisite: permission of department. Junior standing.

HLTH 389 Topical Investigations (1-3) Repeatable to 6 credits if content differs. Independent study by an individual student or an experimental course in special areas of knowledge not covered by regularly scheduled courses.

HLTH 391 Principles of Community Health I (3) Prerequisites: HLTH140 and HLTH230. For HLTH majors only. Broad overview of community health. Health promotion, consumer health, public health, school health, environmental health, preventive medicine, human biology and the health care system are examined. Each area's contribution to community health is discussed.

HLTH 400 Service/Learning in Health Education (3) Prerequisite: permission of department; For HLTH ED majors only. Junior standing. Application of health education knowledge and skills to serve health education needs in the community. Combines community service with preparation and reflection.

HLTH 420 Methods and Materials in Health Education (3) Prerequisites: HLTH105 or HLTH140. The purpose of this course is to present the interrelationships of curriculum planning, methodology and the selection and use of teaching aids and materials. Special problems associated with health teaching are discussed. Students become familiar with a variety of resources as well as with planning for and presenting demonstration lessons.

HLTH 430 Health Education in the Workplace (3) A survey of the role of health education in work settings. Examination of occupational stress, the health effects of shift work, women's health in the workplace, health education approaches to informing workers and management, and health promotion programs in the workplace.

HLTH 434 Introduction to Public Health Informatics (3) Prerequisite: HLTH130. Not open to students who have completed HLTH498E. Credit will be granted for only one of the following: HLTH434 or HLTH498E. Formerly HLTH498E. Provides an overview of the field of public health informatics and the influence of technology on the public's health and well-being. Emphasizes the application of various technologies and computer/internet applications to support public health research and practice, including strategies to address new and emerging threats.

HLTH 437 Consumer Behavior (3) Prerequisites: PSYC100; and SOCY100. An application of the behavioral sciences to a study of consumer behavior. Current theories, models and empirical research findings are explored.

HLTH 460 Minority Health (2-6) Prerequisite: HLTH140 or HLTH230 or permission of department. Health concerns of U.S. ethnic minority groups and factors placing them at elevated risk for disease and injury. Health education concepts and strategies to reduce disparities between their health status and the health status of the general population.

HLTH 471 Women's Health (3) Also offered as WMST471. Credit will be granted for only one of the following: HLT471 or WMST471. The historical, physiological, psychological, and sociological mechanisms which contribute to women's health. Topics will include gynecological concerns and reproductive health; nutrition, exercise; violence; substance use/abuse; and the health of special populations.

HLTH 476 Death Education (3) Examination of the genesis and development of present day death attitudes and behavior by use of a multidisciplinary life cycle approach.

HLTH 485 Ways of Knowing About Human Stress and Tension (3) Prerequisite: HLTH285. Not open to students who have completed HLTH498T. A critical examination of propositions describing the nature of the human condition and the consequences of the propositions on human stress and tension.

HLTH 489 Field Laboratory Projects and Workshop (1-6) Note: the maximum total number of credits that may be earned toward any degree in kinesiology or health education under KNES or HLTH489 is six. A course designed to meet the needs of persons in the field with respect to workshop and research projects in special areas of knowledge not covered by regularly structured courses.

HLTH 490 Principles of Community Health II (3) Two hours of lecture and four hours of laboratory per week. Prerequisite: HLTH391. Students will be involved in the applied aspects of community health education. They will work with specific local community groups, planning, developing, implementing and evaluating a community health project. Health agencies and community health marketing techniques will be investigated.

HLTH 491 Community Health Internship (12) 40 hours of laboratory per week. For community health majors only. Prerequisite: HLTH490. Integrating theory with practice in a community health setting.

HLTH 498 Special Topics in Health (3) Prerequisite: permission of department. Repeatable to 6 credits if content differs. Topics of special interest in areas not covered by regularly scheduled courses.

HONR -- Honors

HONR 100 Honors Colloquium (1) Prerequisite: permission of University Honors Program. Attendance at various additional activities and events is required. Reading and discussion on the personal and social value of higher education; development of a coherent general education program; exploration of the educational and cultural resources of the campus and metropolitan area; participation in a community service project; and other activities designed to broaden students' conception of what it means to be an educated person.

HONR 149 Honors Colloquium (3) Prerequisite: permission of University Honors Program. Repeatable to 9 credits if content differs. A colloquium on a variety of topics.

HONR 168 Honors Seminar (1-3) Prerequisite: permission of University Honors Program. Repeatable to 9 credits if content differs.

HONR 169 Honors Seminar (1-3) Prerequisite: permission of University Honors Program. Repeatable to 9 credits if content differs.

HONR 200 Honors Research Colloquium (1) Prerequisite: permission of University Honors Program. Recommended for students in their second semester. All others should meet with the Honors Advisor. Introduction to scholarly research through readings and meetings with faculty from various disciplines; exploration of research methods and some of the problems encountered in research; discussion of the creative process; attendance at scholarly lectures; and other activities designed to prepare students to enter college or departmental honors programs.

HONR 201 Beginning Research (1-3) Prerequisite: permission of University Honors Program. Involves preliminary investigation, under individual faculty guidance, of a research question chosen by the student.

HONR 208 Honors Seminar (1-3) Prerequisite: permission of the University Honors Program. Repeatable to 9 credits if content differs.

HONR 209 Honors Seminar (1-3) Prerequisite: permission of University Honors Program. Repeatable to 9 credits if content differs.

HONR 216 In Search of Ancient Astronomies (3) For HONR majors only. Not open to students who have completed HONR218A. Credit will be granted for only one of the following: HONR216 or HONR218A. Formerly HONR218A. An introduction to Archaeoastronomy, the interdisciplinary study of the astronomical practices, celestial lore, mythologies, religions, and cosmologies of ancient and indigenous peoples.

HONR 217 Life, The Multiverse and Everything: Developing an Individual (3) Cosmovision In this Honors seminar, students pursue personal cosmologies in light of our contemporary core "Western" scientific world-view and a selection of other ancient and indigenous cosmographies for comparison including those of Mesoamerica, the Inca, the Egyptians or the Chinese.

HONR 218 Honors Seminar (1-3) Prerequisite: permission of University Honors Program. Repeatable to 9 credits if content differs.

HONR 219 Honors Seminar (1-3) Prerequisite: permission of University Honors Program. Repeatable to 9 credits if content differs.

HONR 228 Honors Seminar (1-3) Prerequisite: permission of University Honors Program. Repeatable to 9 credits if content differs.

HONR 229 Honors Seminar (1-3) Prerequisite: permission of University Honors Program. Repeatable to 9 credits if content differs.

HONR 238 Honors Seminar (1-3) Prerequisite: permission of University Honors Program. Repeatable to 9 credits if content differs.

HONR 239 Honors Seminar (1-3) Prerequisite: permission of University Honors Program. Repeatable to 9 credits if content differs.

HONR 248 Honors Seminar (1-3) Prerequisite: permission of University Honors Program. Repeatable to 9 credits if content differs.

HONR 249 Honors Seminar (1-3) Prerequisite: permission of University Honors Program. Repeatable to 9 credits if content differs.

HONR 258 Honors Seminar (1-3) Prerequisite: permission of University Honors Program. Repeatable to 9 credits if content differs.

HONR 259 Honors Seminar (1-3) Prerequisite: permission of University Honors Program. Repeatable to 9 credits if content differs.

HONR 267 Knowledge Across Disciplines (3) Prerequisite: permission of University Honors Program. Interdisciplinary seminar that explores knowledge in the context of contemporary experience, using key texts and discoveries from biology, mathematics, physics, political theory, humanities and the creative arts.

HONR 268 Honors Seminar (1-3) Prerequisite: permission of University Honors Program. Repeatable to 9 credits if content differs.

HONR 269 Honors Seminar (1-3) Prerequisite: permission of University Honors Program. Repeatable to 9 credits if content differs.

HONR 278 Honors Seminar (1-3) Prerequisite: permission of University Honors Program. Repeatable to 9 credits if content differs.

HONR 279 Honors Seminar (1-3) Prerequisite: permission of University Honors Program. Repeatable to 9 credits if content differs.

HONR 288 Honors Seminar (1-3) Prerequisite: permission of University Honors Program. Repeatable to 9 credits if content differs.

HONR 289 Honors Seminar (1-3) Prerequisite: permission of University Honors Program. Repeatable to 9 credits if content differs.

HONR 298 Honors Seminar (1-3) Prerequisite: permission of University Honors Program. Repeatable to 9 credits if content differs.

HONR 299 Honors Seminar (1-3) Prerequisite: permission of University Honors Program. Repeatable to 9 credits if content differs.

HONR 318 Advanced Honors Seminar (3) Prerequisite: permission of University Honors Program. Repeatable to 9 credits if content differs. A series of seminars, often interdisciplinary in character, and sometimes team taught. The subjects will vary from semester to semester.

HONR 328 Advanced Honors Seminar (3) Prerequisite: permission of University Honors Program. Repeatable to 9 credits if content differs. A series of seminars, often interdisciplinary in character, and sometimes team taught. The subjects will vary from semester to semester.

HONR 338 Advanced Honors Seminar (3) Prerequisite: permission of University Honors Program. Repeatable to 9 credits if content differs. A series of seminars, often interdisciplinary and sometimes team taught. The subjects will vary from semester to semester.

HONR 348 Advanced Honors Seminar (1-3) Prerequisite: permission of University Honors Program. Repeatable to 9 credits if content differs. A series of seminars, often interdisciplinary and sometimes team taught. The subjects will vary from semester to semester.

HONR 349 Honors Colloquium (1-3) Prerequisite: University or departmental Honors student or permission of instructor and the Director of University Honors. Repeatable to 3 credits if content differs. A series of seminars, often interdisciplinary and sometimes team taught. Subjects may vary.

HONR 358 Honors Practicum (3) Prerequisite: permission of University Honors Program. Repeatable to 9 credits if content differs. Formerly HONR379. For student section leaders of HONR100 or HONR200.

HONR 359 Honors Workshop (1-6) Prerequisite: permission of University Honors Program. Repeatable to 9 credits if content differs. Honors workshops are small seminar classes which concentrate on skill development.

HONR 368 Advanced Honors Seminar (3) Prerequisite: permission of University Honors Program. Repeatable to 9 credits if content differs. A series of seminars, often interdisciplinary in character and sometimes team-taught. The subjects will vary from semester to semester.

HONR 378 Advanced Honors Seminar (3) Prerequisite: permission of University Honors Program. Repeatable to 9 credits if content differs. A series of seminars, often interdisciplinary in character and sometimes team-taught. The subjects will vary from semester to semester.

HONR 379 Honors Independent Study (1-6) Prerequisite: permission of University Honors Program. Repeatable to 6 credits if content differs. Involves reading or research directed by individual faculty, especially in areas outside of the student's major. Open only to University honors students.

HONR 386 Experiential Learning (3-6) Prerequisite: Learning Proposal approved by the Office of Experiential Learning Programs, faculty sponsor, and student's internship sponsor. Junior standing.

HONR 388 Honors Thesis or Project (3-6) Repeatable to 6 credits if content differs. Formerly HONR370.

HONR 389 Guided Honors Teaching (3) Prerequisite: permission of University Honors Program. Repeatable to 9 credits if content differs. For HONR100 and HONR200 section leaders. Guided teaching experience for selected students in the University Honors Program.

ITAL -- Italian

ITAL 101 Elementary Italian I (4) Credit will be granted for only one of the following: ITAL101 or ITAL121. Introduction to basic grammar and vocabulary; written and oral work.

ITAL 102 Elementary Italian II (4) Prerequisite: ITAL101 or permission of department. Continuation of study of basic grammar; written and oral work, with increased emphasis on spoken Italian.

ITAL 103 Intensive Elementary Italian (4) Three hours of lecture and one hour of laboratory per week. Not open to students who have completed more than two years of high school Italian, or to fluent/native speakers of Italian. Credit will be granted for only one of the following: ITAL103 or ITAL121. Covers speaking, reading, writing, listening, and culture of Italian-speaking world.

ITAL 121 Accelerated Italian I (3) Credit will be granted for only one of the following: ITAL103 or ITAL121. An intensive beginning course in Italian language skills: guided practice in reading, writing, understanding and conversation, to enable the student to move more quickly to advanced courses. Restricted to students already having a good background in at least one other foreign language. When taken with ITAL122, may be used to satisfy language requirement.

ITAL 122 Accelerated Italian II (3) Prerequisite: ITAL121 or permission of department. Credit will be granted for only one of the following: ITAL203 or ITAL122. Continuation of ITAL121. Completion of accelerated cycle. May be used to satisfy language requirement.

ITAL 203 Intensive Intermediate Italian (4) Prerequisite: ITAL103 or equivalent. Not open to students who have completed ITAL122, four years of high school Italian, or to fluent/native speakers of Italian. Credit will be granted for only one of the following: ITAL203 or ITAL122. Covers speaking, reading, writing, listening, and culture of Italian-speaking world.

ITAL 204 Review Grammar and Composition (3) Prerequisite: ITAL203 or ITAL122, or permission of department. An intensive review of major aspects of contemporary grammatical usage; training in comprehension; an introduction to guided composition.

ITAL 207 Reading and Writing in Italian (3) Not open to fluent/native speakers of Italian. Prerequisite: ITAL204 or equivalent. Culture-based, process approach to reading and writing in Italian; selected grammatical topics.

ITAL 211 Intermediate Conversation (3) Prerequisite: ITAL203 or permission of department. Not open to fluent/native speakers of Italian. Practice in spoken Italian based on reading and listening exercises in a variety of genres. Written assignments and exams.

ITAL 241 Italian Women Writers - in Translation (3) An analysis of the writings and the ideas of Italian women writers. Taught in English.

ITAL 251 Aspects of Contemporary Italian Literature and Culture (3) Prerequisite: ITAL204 or ITAL211 or permission of department. Reading of selected literary texts; discussion and brief essays in Italian.

ITAL 261 Cuisine, Culture, and Society in Italy Yesterday and Today (3) Prerequisite: ITAL204 or permission of department. This course will expose students to an important aspect of Italian culture. The art of gastronomy. Taught entirely in Italian, the course is intended to give students an in-depth understanding of the close relationship between food and culture, while enriching their knowledge of the Italian language through reading and analysis of various texts which deal with the preparation and adaptation of Italian food in different cultural settings.

ITAL 271 The Italian-American Experience (in English) (3) This course is an interdisciplinary study of Italian immigrants in the U.S. from the discovery of America to the present. Special emphasis on the intellectual, artistic and scientific achievements of Italian Americans in the New World and the formation of their national identity as a product of a new hybridized culture. The phenomenon of Italglish as an immigrant idiom, the problem of multiculturalism and the issue of ethnicity will also be examined in relationship with other ethno-cultural groups.

ITAL 301 Composition and Style (3) Prerequisite: ITAL204 or permission of department. Techniques of composition; grammatical analysis; elements of style; free composition.

ITAL 302 Introduction to Translation (3) Prerequisite: ITAL301 or permission of department. Translation exercises into English and Italian; problems and strategies.

ITAL 306 Commercial Italian I (3) Prerequisite: ITAL301 or permission of department. An introduction to Italian Business language and culture. Special emphasis on communicative strategies used in business transactions and applications. Reading and discussion of relevant articles relating to business world from on-line newspapers and magazines.

ITAL 311 Advanced Oral Expression: Current Events (3) Prerequisite: ITAL211 or permission of department. Oral expression; development of idiomatic forms and vocabulary to level of the Italian press. Not open to students with native fluency.

ITAL 350 Readings in Italian Literature (3) Prerequisite: ITAL251 or permission of department. An exploration of principal figures, themes and styles from Dante through the Renaissance to Pirandello and present-day writers.

ITAL 386 Experiential Learning (3-6) Prerequisite: Learning Proposal approved by the Office of Experiential Learning Programs, faculty sponsor, and student's internship sponsor. Junior standing.

ITAL 388 Language House Colloquium (1) Prerequisite: Residence in Language House. Repeatable to 4 credits. The Language House Colloquium is a one-credit course for students residing in the Language House Immersion Program. The course focuses on the further development of skills in the target language and the acquiring of cultural knowledge of the countries that speak the target language. The course is designed to supplement the learning that takes place on a daily basis in the Language House program.

ITAL 399 Directed Study in Italian (1-3) Prerequisite: permission of department. Repeatable to 3 credits. Intended for undergraduates who wish to work on an individual basis with a professor of their choice.

ITAL 401 Advanced Composition and Style (3) Prerequisite: ITAL301 or equivalent. Advanced writing practice in range of genres.

ITAL 406 Commercial Italian II (3) Prerequisite: ITAL306 or permission of department. Advanced study of commercial Italian language - terminology and style- in the area of business and finance. Emphasis on cross-cultural communications and international business operations, including exporting and banking. Readings on sociological issues of contemporary Italy used for written and oral practice of Italian and vocabulary enrichment.

ITAL 411 Dante in Translation (3) Credit will be granted for only one of the following: ITAL411 or ITAL412. Dante's thought as expressed in his major writings: The Vita Nuova, De Monarchia and The Divine Comedy. In English.

ITAL 412 Dante in Italian (3) Credit will be granted for only one of the following: ITAL411 or ITAL412. Dante's thought as expressed in his major writings: The Vita Nuova, De Monarchia and The Divine Comedy. In Italian.

ITAL 421 The Italian Renaissance (3) Credit will be granted for only one of the following: ITAL421 or ITAL422. A study of Major trends of thought in Renaissance literature, art, and science. In English.

ITAL 422 The Italian Renaissance in Italian (3) Credit will be granted for only one of the following: ITAL421 or ITAL422. A study of major trends of thought in Renaissance literature, art, and science. In Italian.

ITAL 431 Italian Civilization in Translation (3) Credit will be granted for only one of the following: ITAL431 or ITAL432. Political, social, intellectual, literary and artistic forces shaping contemporary Italy from the late Middle Ages to the present. In English.

ITAL 432 Italian Civilization in Italian (3) Credit will be granted for only one of the following: ITAL431 or ITAL432. Political, social, intellectual, literary and artistic forces shaping contemporary Italy from the late Middle Ages to the present. In Italian.

ITAL 471 Italian Cinema: A Cultural Approach in Translation (3) Credit will be granted for only one of the following: ITAL471 or ITAL472. Formerly ITAL475. The culture of Italy through the medium of film from the silent days up to the present. In English.

ITAL 472 Italian Cinema: A Cultural Approach in Italian (3) Credit will be granted for only one of the following: ITAL471 or ITAL472. The culture of Italy through the medium of film from the silent days up to the present. In Italian.

ITAL 473 Italian Cinema II - In Translation (3) Freshman standing. Repeatable to 3 credits if content differs. Also offered as ITAL474. Credit will be granted for only one of the following: ITAL473 or ITAL474. Formerly ITAL499E. A study of Italian society and culture through the medium of film from the mid 1970's to the present. In English.

ITAL 474 Italian Cinema II - In Italian (3) Three hours of lecture and one hour of discussion/recitation per week. Also offered as ITAL473. Credit will be granted for only one of the following: ITAL473 or ITAL474. Formerly ITAL499I. A study of Italian society and culture through the medium of film from the mid 1970's to the present. In Italian.

ITAL 475 The Italian Opera Libretto in English (3) Prerequisite: One course in literature. Credit will be granted for only one of the following: ITAL475, or ITAL476. History and analysis of Italian opera librettos from Monteverdi through Mozart to Verdi and Puccini. In English.

ITAL 476 The Italian Opera Libretto in Italian (3) Credit will be granted for only one of the following: ITAL476 or ITAL475. History and analysis of Italian opera librettos from Monteverdi through Mozart to Verdi and Puccini. In Italian.

ITAL 478 Colloquium in Italian (1) Prerequisite: ITAL311 or equivalent. Corequisite: ITAL411, ITAL421, ITAL431, ITAL471, ITAL473, ITAL475, ITAL498, or ITAL499. Repeatable to 6 credits. Colloquium section taught in Italian to accompany 400-level Italian courses taught in English. Discussion, presentations, readings.

ITAL 497 Senior Project (3) Prerequisite: four courses at 400-level in Italian; permission of department. Individual independent study of an aspect of Italian literature, culture or society selected according to student interest and need in consultation with a member of the Italian program.

ITAL 498 Special Topics in Italian Literature (3) Repeatable to 6 credits if content differs.

ITAL 499 Special Topics in Italian Studies (3) Repeatable to 6 credits if content differs.

IVSP -- Individual Studies Program

IVSP 317 Progress Report (1) Prerequisite: admission to IVSP major. A written analysis of the program. Students register for IVSP 317 only once, the semester before the final term.

IVSP 318 Independent Learning Activities (1-6) Prerequisite: admission to IVSP major and prior arrangements with faculty sponsor. For IVSP majors only. Repeatable to 9 credits if content differs. An independent study course which students can use for a variety of out-of-class internship and research opportunities.

IVSP 420 Senior Paper (3) Prerequisite: admission to IVSP major. For IVSP majors only. Synthesizing final paper or a final special project.

JAPN -- Japanese

JAPN 101 Elementary Japanese I (6) Introduction to basic patterns of contemporary spoken Japanese and to the two phonetic syllabaries (Katakana and Hiragana).

JAPN 102 Elementary Japanese II (6) Prerequisite: grade of C (2.0) or better in JAPN101 or permission of instructor. Credit will be granted for only one of the following: JAPN102 or (JAPN106 and JAPN107). Continued introduction to the basic spoken patterns of contemporary Japanese.

JAPN 106 Introductory Japanese III (3) Prerequisite: JAPN101 or equivalent. Not open to students who have completed JAPN102. Credit will be granted for only one of the following: JAPN102 or JAPN106. Introduction to the basic spoken patterns of contemporary Japanese, and to limited reading and writing in kana/kanji. Intended for incoming freshmen and transfer students with some previous knowledge of Japanese.

JAPN 201 Intermediate Japanese I (6) Prerequisite: a grade C (2.0) or better in JAPN102 or permission of instructor. Contemporary spoken and written Japanese.

JAPN 202 Intermediate Japanese II (6) Prerequisite: a grade of C (2.0) or better in JAPN201 or permission of instructor. Contemporary spoken and written Japanese.

JAPN 214 Japanese Culture and Communication Viewed Through Anime (3) By viewing animation with an emphasis on school life and youth culture, this course addresses issues such as interpersonal communication (verbal and non-verbal behavior), cultural values, norms, and expectations. Also, it introduces colloquial language. No previous knowledge of Japanese is required. Open to high school seniors.

JAPN 217 Japanese Literature in the Age of the Samurai (3) Introduction to the masterworks of medieval Japanese literature (c. 1200-1850) and to their intellectual and cultural backgrounds, focusing on prose fiction and drama.

JAPN 298 Special Topics Japanese Literature (3) Repeatable to 9 credits if content differs. Special topics in Japanese literature.

JAPN 301 Advanced Japanese I (6) Prerequisite: a grade of C (2.0) or better in JAPN202 or permission of instructor. Advanced conversation, oral comprehension, and selected readings.

JAPN 302 Advanced Japanese II (6) Prerequisite: a grade of C (2.0) or better in JAPN301 or permission of instructor. Continued readings in varied modern texts and advanced conversation and oral comprehension.

JAPN 307 Kanji and Composition (3) Not open to fluent/native writers of Kanji. Prerequisite: Grade of C (2.0) or better in JAPN301 and permission of instructor. Study of Kanji in context; intensive writing practice.

JAPN 317 Buddhism and Japanese Literature in Translation (3) Religious and philosophical traditions central to Japanese imaginative life and literature from ancient to modern times.

JAPN 386 Experiential Learning (3-6) Prerequisite: Learning Proposal approved by the Office of Experiential Learning Programs, faculty sponsor, and student's internship sponsor. Junior standing.

JAPN 388 Language House Spring Colloquium (1) Prerequisite: Residence in Language House. Repeatable to 8 credits. For students residing in the Language House Immersion Program. Focuses on the development of skills in the target language and acquiring the cultural knowledge of the countries that speak the target language.

JAPN 401 Readings in Modern Japanese Literature (3) Prerequisite: a grade of C (2.0) or better in JAPN302 or permission of instructor. Development of advanced reading, vocabulary, grammar, and translation skills through selected readings in Japanese drawn primarily from modern literature.

JAPN 402 Readings in Japanese Cultural Studies (3) Prerequisite: a grade of C (2.0) or better in JAPN401 or permission of instructor. Development of advanced reading, vocabulary, grammar, and translation skills through selected readings in Japanese drawn from the fields of history, social sciences, cultural studies, film studies, and popular culture.

JAPN 403 Business Japanese: Practicum in Communicative Skills (3) Prerequisite: a grade of C (2.0) or better in JAPN302 or permission of instructor. Development of conversation, reading, and writing skills applicable to Japanese business transactions, official situations, and social meetings, with background material in English on professional business practices and social customs associated with business.

JAPN 404 Business Japanese: Readings and Applications (3) Prerequisite: a grade of C (2.0) or better in JAPN302 or permission of instructor. Focus on current readings pertaining to the Japanese corporate world from newspapers and other periodicals as well as online sources, and project-based development of oral and written skills in business Japanese.

JAPN 405 Readings in Advanced Modern Japanese (3) Prerequisite: JAPN402 or equivalent or permission of department. Designed to further improve reading and translation skills; the course will include readings from newspaper articles, literary works, and academic publications in the social sciences and humanities. Listening exercises are included.

JAPN 406 Translating Diplomatic Japanese (3) Prerequisite: a grade of C (2.0) or better in JAPN401 or permission of instructor. Formal, written, diplomatic Japanese to develop practical translation skills and to learn to use the computer as a telecommunications and translation workstation.

JAPN 407 The Art of Translation (3) Prerequisite: A grade of C (2.0) or better in JAPN401 or equivalent. Theory and practice of translation. Variety of genres. Japanese to English.

JAPN 408 Special Topics in Japanese (3) Prerequisite: A grade of C (2.0) or better in JAPN302; or permission of instructor. Topic in the Study of Japanese, to be announced each time course is offered. Taught in Japanese.

JAPN 411 Introduction to Classical Japanese (3) Prerequisite: JAPN302 or equivalent. Classical Japanese grammar and the varied styles of classical Japanese. Readings in classical texts drawn from the Heian, Kamakura, Muromachi, and Edo periods.

JAPN 412 Classical Japanese (3) Prerequisite: JAPN411. Continuation of JAPN 411 with more advanced classical Japanese.

JAPN 414 Masterpieces of Classical Japanese Literature in Translation (3) Major classics, with focus on philosophical, historical and cultural backgrounds.

JAPN 415 Modern Japanese Fiction in Translation (3) Major themes and literary developments in fiction from the late 19th century to the present. Emphasis on the works of Kawabata, Tanizaki, Mishima, and Abe.

JAPN 416 Japanese Women and Women Writers (3) Fiction and poetry by Japanese women from the Ninth Century to the present. Women's early role in creating and shaping a variety of literary genres, the silencing of women during the age of the shoguns, and the reemergence of a feminist tradition and women writers in the Twentieth Century. In English.

JAPN 418 Japanese Literature in Translation (3) Repeatable to 9 credits if content differs. Representative works of Japanese literature in translation.

JAPN 421 History of the Japanese Language (3) Investigation of the origin of the Japanese language, its relationship with other languages, and its development. In English.

JAPN 422 Introductory Japanese Linguistics (3) An investigation of Japanese sound patterns and syntax through a comparison with English.

JAPN 428 Seminar in Japanese Discourse and Conversation Analysis (3) Prerequisite: JAPN302. Recommended: JAPN422. Repeatable to 6 credits if content differs. Presentation and discussion of classic and current readings in English and Japanese on theories and actual practice of discourse and conversation analysis. Students will learn transcription techniques and have an opportunity to apply them in a final term paper.

JAPN 438 Topics in Japanese Pragmatics (3) Prerequisite: JAPN201. Recommended: JAPN422. Repeatable to 9 credits if content differs. Also offered as JAPN638. Credit will be granted for only one of the following: JAPN438 or JAPN638. Basic concepts in the field of pragmatics (the study of language in context) such as deixis and indexicality, speech acts, ellipsis, and politeness. Readings in English on English and Japanese examples.

JAPN 498 Special Topics in Japanese Studies (3) Special topics in Japanese studies. Taught in English.

JAPN 499 Directed Study in Japanese (1-3) Prerequisite: permission of instructor. Repeatable to 6 credits if content differs.

JOUR -- Journalism

JOUR 100 Professional Orientation (1) Not open to students who have completed JOUR101. Credit will be granted for only one of the following: JOUR100 or JOUR101. Formerly JOUR101. Survey of journalism professions, emphasizing appropriate academic and career development strategies.

JOUR 150 Introduction to Mass Communication (3) Not open to students who have completed JOUR100 prior to Fall 1999. Credit will be granted for only one of the following: JOUR100 or JOUR150. Formerly JOUR100. Survey of the functions and effects of the mass media in the United States. A consumer's introduction to newspapers, television, radio, film, sound recording, books, magazines, and new media technology.

JOUR 175 Media Literacy (3) Two hours of lecture and one hour of discussion/recitation per week. Not applicable toward journalism major. An analysis of the information, values and underlying messages conveyed via television, newspapers, the internet, magazines, radio and film. Examines the accuracy of those messages and explores how media shape views of politics, culture and society.

JOUR 181 Grammar for Journalists (1) Pre- or corequisite: JOUR100. Credit will be granted for only one of the following: ENGL181, ENGL281, or JOUR181. An examination of the basic structure of written English needed for precise journalistic writing. Parts of speech, sentence patterns, standard punctuation, diction, and usage will be examined with emphasis with an emphasis on its application in journalism.

JOUR 198 Survey Apprenticeship (1) Prerequisite: permission of department. For JOUR majors only. Repeatable to 6 credits if content differs. College-monitored experience in approved mass-communications organizations and industries.

JOUR 199 Survey Apprenticeship (1) Prerequisite: permission of department. Repeatable to 6 credits if content differs. Formerly JOUR198. College-monitored experience in approved mass-communications organizations and industries.

JOUR 200 Journalism History, Roles and Structures (3) Pre- or corequisite: JOUR100. For JOUR majors only. Introduction to the study of journalism from the standpoint of media history and sociology.

JOUR 201 News Writing and Reporting I (3) Pre- or corequisite: JOUR100. Grammar competency demonstrated by a grade of C (2.0) or better in JOUR181 or a score of 52 or higher on the TSWE and permission of department. Sophomore standing. Introduction to news for the print and electronic media, development of new concepts: laboratory in news-gathering tools and writing skills.

JOUR 202 News Editing (3) Prerequisite: grade of C or better in JOUR201. For JOUR majors only. Copy editing, graphic principles and processes, new media technology.

JOUR 203 Multimedia Reporting (3) Two hours of lecture and one hour of discussion/recitation per week. Prerequisite: JOUR201. For JOUR majors only. Credit will be granted for only one of the following: JOUR203 or JOUR328G. Preparing textual, audio and video news messages in a traditional deadline atmosphere for digital delivery.

JOUR 231 News Writing and Reporting for Public Relations (3) Two hours of lecture and two hours of laboratory per week. Prerequisite: grammar competency demonstrated by a score of 52 or higher on the TSWE and permission of department. Credit will be granted for only one of the following: JOUR201P or JOUR231. Introduction to news for the print and electronic media, development of new concepts: laboratory in news-gathering tools and writing skills.

JOUR 232 News Editing for Public Relations (3) Two hours of lecture and two hours of laboratory per week. Prerequisite: Grade of C or better in JOUR231 or equivalent and permission of department. Credit will be granted for only one of the following: JOUR202P or JOUR232. Copy editing, graphic principles and processes, new media technology.

JOUR 240 Advertising in America (3) Not open to students who have completed JOUR340. Credit will be granted for only one of the following: JOUR240 or JOUR340. Formerly JOUR340. Survey of the history, regulation and organization of advertising; advertising strategies and effects.

JOUR 262 News Editing for Broadcast (3) Two hours of lecture and two hours of laboratory per week. Prerequisite: Grade of C or better in JOUR201 and permission of department. Credit will be granted for only one of the following: JOUR202B or JOUR262. Principles and processes of broadcast newsroom editing.

JOUR 300 Journalism Ethics (3) Prerequisite: JOUR201. For JOUR majors only. Examination of ethical problems in news writing and reporting.

JOUR 320 News Writing and Reporting II: Print (3) Two hours of lecture and two hours of laboratory per week. Prerequisite: grade of C or better in JOUR201. For JOUR majors only. Principles and practices of news reporting; covering news beats and other news sources, including researching news stories for accuracy, comprehensiveness and interpretation.

JOUR 322 Advanced Reporting: Beats and Investigation (3) Prerequisite: JOUR320 or JOUR360. Advanced training and practice in writing, interviewing, beat reporting and investigative techniques. Students meet in weekly seminars and work with metropolitan-area newspapers covering beats and writing stories for publication.

JOUR 323 Advanced News Editing (3) Prerequisite: grade of C or better in JOUR202. Principles and practices of editing for publication. Copy improvement, headline writing, news photos and cutlines, wire services, copy control and scheduling, page design and layout.

JOUR 324 Commentary and Editorial Writing (3) Prerequisite: JOUR320 or JOUR360. Not open to students who have completed JOUR326 prior to January 1, 1992. Formerly JOUR326. Journalistic interpretation and analysis; commentary and editorial writing.

JOUR 325 Print News Bureau (6) Prerequisite: JOUR320 and permission of department. Advanced journalism training. Students report as part of College's Capital News Service program.

JOUR 328 Special Topics in News Writing and Reporting (1-3) Prerequisite: JOUR320 or JOUR360. Repeatable to 6 credits if content differs. Advanced training and practice in writing and reporting news.

JOUR 350 Graphics (3) Prerequisite: A grade of 'C' (2.0) or better in JOUR202 or 262. Credit will be granted for only one of the following: JOUR350 or JOUR373. An examination of the relationship of verbal and visual components of news content and the presentation of information in print and online publications by combining typography, graphics, images and interactivity using current digital technologies.

JOUR 351 Advanced Graphics (3) Prerequisite: JOUR350. In-depth analysis of News graphics.

JOUR 352 Online Journalism (3) Two hours of lecture and two hours of laboratory per week. Prerequisite: JOUR202 or JOUR262. For JOUR majors only. Editing and writing online, using basic Web-coding skills and tools to create news and feature packages for the Internet. New-media issues, including interactivity and individualization, will also be discussed.

JOUR 353 Advanced Online Reporting (3) Three hours of laboratory per week. Prerequisite: JOUR352, permission of department and JOUR320 or JOUR360. Advanced reporting and writing in an online environment focusing on multimedia and non-traditional storytelling. Students report and write for an online magazine.

JOUR 354 Interactive Multimedia Storytelling (3) Prerequisite: JOUR352. For JOUR majors only. Advanced development of multimedia journalism, with emphasis on interactivity and application of new technologies, drawing on multiple sources, technologies and techniques to create interactive narratives.

JOUR 355 Online News Bureau (3) Prerequisite: (JOUR202 or JOUR262) and (JOUR320 or JOUR360) and JOUR352; and permission of department. Advanced online journalism training. Students work as multimedia editors and producers for an online newsmagazine, building interactive content and special reports.

JOUR 358 Special Topics in Visual Communication (6) Prerequisite: JOUR320 or JOUR360. Repeatable to 6 credits if content differs. Advanced training and practice in visual communication.

JOUR 360 News Writing and Reporting II: Broadcast (3) Prerequisite: grade of C or better in JOUR201. For JOUR majors only. Writing and reporting for broadcast media: production of news stories.

JOUR 361 Television Reporting and Production (3) Prerequisite: JOUR262 and JOUR360. Writing and editing for the broadcast media. Interpretive and documentary news stories.

JOUR 362 Broadcast News Producing (3) One hour of lecture and four hours of laboratory per week. Prerequisite: JOUR262 and JOUR360;. Pre- or corequisite: JOUR361. Credit will be granted for only one of the following: JOUR362 or JOUR368B. Formerly JOUR368B. Producing TV news.

JOUR 363 Long Form Broadcast Journalism (3) Prerequisite: JOUR361 and permission of department. For JOUR majors only. Also offered as JOUR663. Credit will be granted for only one of the following: JOUR363 or JOUR486. Formerly JOUR486. Production of long form broadcast news reporting, reality videos or documentaries.

JOUR 367 Broadcast News Bureau (6) Prerequisite: JOUR361 and permission of department. Advanced broadcast journalism training. Students report as part of the College's Capital News Service program.

JOUR 368 Topics in Broadcast and Electronic Media (1-3) Prerequisite: JOUR360. Repeatable to 6 credits if content differs. Advanced research, analysis and/or practice of selected topics in broadcast journalism.

JOUR 371 Feature Writing (3) Prerequisite: JOUR320. Research and writing feature articles.

JOUR 372 Writing the Complex Story (3) Prerequisite: JOUR371. Credit will be granted for only one of the following: JOUR372 or JOUR481. Formerly JOUR481. Explanatory journalism technique applied to complex subjects (such as science, economics and large scale social change) for books, magazines and newspaper series.

JOUR 374 Magazine Editing and Production (3) Prerequisites: JOUR371 and JOUR373. Principles and techniques of magazine editing and production.

JOUR 375 Newsroom Management (3) Prerequisite: JOUR320 or JOUR360 or permission of department. Not open to students who have completed JOUR461. Credit will be granted for only one of the following: JOUR375 or JOUR461. Formerly JOUR461. Organization, operation, and administration of the departments of a newsroom: advertising, business-finance, circulation, news-editorial, personnel, production and promotion.

JOUR 377 Literary Journalism (3) Pre- or corequisite: JOUR371. Credit will be granted for only one of the following: JOUR377 or JOUR487. Formerly JOUR487. Practice in the use of literary techniques and especially of dramatic structure in modern newspaper series, magazine pieces and books. Analysis, researching and writing of nonfiction stories, usually with a focus on a specialized area chosen by the student.

JOUR 380 Science Writing for News Media (3) Prerequisite: JOUR320 or permission of department. Writing of scientific and technical material for the general audience.

JOUR 386 Experiential Learning (3-6) Prerequisite: Learning Proposal approved by the Office of Experiential Learning Programs, faculty sponsor, and student's internship sponsor. Junior standing.

JOUR 389 News Coverage of Special Topics (1-3) Prerequisite: JOUR320 or JOUR360. Repeatable to 6 credits. Advanced training and practice in writing and reporting news in one specialized field of interest.

JOUR 398 Independent Study (1-3) Repeatable to 3 credits. Individual projects in journalism.

JOUR 399 Supervised Internship (1) Prerequisite: Grade of C or better in JOUR320 or JOUR360. Repeatable to 3 credits if content differs. Credit will be granted for only one of the following: JOUR326, JOUR366, JOUR396 or JOUR399. Formerly JOUR396. Supervised news internship experience; relation of academic training to professional experience.

JOUR 400 Media Law (3) Prerequisite: JOUR320 or JOUR360 or JOUR501. Junior standing. Legal rights and constraints of mass media; libel, privacy, copyright, monopoly, contempt, and other aspects of the law applied to mass communication. Previous study of the law not required.

JOUR 410 History of Mass Communication (3) Junior standing. Development of newspapers, magazines, radio, television and motion pictures as media of mass communication. Analysis of the influences of the media on the historical development of America.

JOUR 420 Media Coverage of Government and Politics (3) Junior standing. Relationship between news media and government and politics; governmental and political information and persuasion techniques.

JOUR 430 Comparative Mass Communication Systems (3) Junior standing. Comparative analysis of the role of the press in different societies.

JOUR 434 Salzburg Seminar: Global Media Literacy (3) Credit will be granted for only one of the following: JOUR434 or JOUR734. An advanced analysis of the information, values underlying messages conveyed via television, newspapers, the Internet, magazines, radio and film from a cross-cultural perspective. Examines the accuracy of messages and explores how distinctive global media shape views of politics culture and society with nations, across regions and internationally.

JOUR 435 Salzburg Seminar: Global Change, Global Cooperation (3) Practical and theoretical examination of a global problem (or problems) of contemporary importance from a cross-cultural, perspective. Analytical framework used to examine how media shape global problems, events and/or issues regionally.

JOUR 440 Media Economics (3) Junior standing. Examination of the economics of the news media.

JOUR 450 Mass Media in Society (3) Junior standing. Ethical, moral, political, economic, and social consideration of mass communication.

JOUR 451 Advertising and Society (3) Junior standing. Advertising as an institution with manifest economic purposes and latent social effects. Influences of advertising on people, and related issues of ethics and social responsibility.

JOUR 452 Women in the Media (3) Junior standing. Also offered as WMST452. Credit will be granted for only one of the following: JOUR452 or WMST452. Participation and portrayal of women in the mass media from colonial to contemporary times.

JOUR 453 News Coverage of Racial Issues (3) Junior standing. Analysis of news media coverage of issues relating to racial minorities in the United States, with special attention to Hispanics, Asian Americans, African Americans and Native Americans.

JOUR 458 Special Topics in Journalism (3) Repeatable to 6 credits if content differs. Issues of special concerns and current interest.

JOUR 459 Special Topics in Journalism (1-3) Repeatable to 6 credits if content differs. Issues of special concern and current interest. Open to all students.

JOUR 462 Professional Seminar in Public Affairs Reporting (3) Prerequisite: permission of department. Explore theoretical and practical issues in the press coverage of governments. Examine the complex press-government relationship.

JOUR 463 Newsroom Management (3) Prerequisite: JOUR320 or JOUR360; or permission of department. Credit will be granted for only one of the following: JOUR375, JOUR461, or JOUR463. Formerly JOUR375. Organization, operation, and administration of the departments of a newsroom: advertising, business-finance, circulation, news-editorial, personnel, production, and promotion.

JOUR 464 Readings in Journalism Literature (3) Credit will be granted for only one of the following: JOUR376 or JOUR464. Formerly JOUR376. Analysis of books by journalists highly regarded for writing style and/or the content of their reporting, with an emphasis on understanding the books in the context of national and international affairs.

JOUR 465 Visual Literacy (3) Prerequisite: JOUR201. Junior standing. Practical and theoretical examination of visual communication processes related to photography, layout and design, video and Web information products.

JOUR 466 Survey of Broadcast and Electronic News Media (3) Prerequisite: JOUR201. Credit will be granted for only one of the following: JOUR365 or JOUR466. Formerly JOUR365. Descriptive and critical analysis of broadcast news practices, regulation and history; evaluation of news judgments; decision-making and organizational aspects of the broadcast news industry.

JOUR 467 Technology and the Media (3) Two hours of lecture and two hours of laboratory per week. Prerequisite: JOUR320 or JOUR360. Recommended: JOUR352. Exploration of the role of information technology in social change.

JOUR 470 Journalism and Public Communication Research (3) Prerequisite: A university statistics course. Students are encouraged to have completed the theory and skills courses in their major sequence. Credit will be granted for only one of the following: JOUR470 or JOUR477. Formerly JOUR477. Journalism and public communication research methods used in measuring public opinion and media programs and materials.

JOUR 471 Public Opinion Research (3) Prerequisite: a University statistics course. Measurement of public opinion and media habits; role of the media in the formation of public opinion.

JOUR 472 Computer-Assisted Reporting (3) Two hours of lecture and two hours of laboratory per week. Prerequisite: JOUR320 or JOUR360. Not open to students who have completed JOUR328. Credit will be granted for only one of the following: JOUR328 or JOUR472. Formerly JOUR328. Computer and online data acquisition; analytical methods for writing and reporting news.

JOUR 479 Special Topics in Data Gathering and Analysis (1-3) Prerequisite: JOUR320 and JOUR360. Repeatable to 3 credits. Special research topics for reporting and writing.

JOUR 494 Yearbook Short Course (1) Prerequisite: JOUR201 or permission of department. Credit not applicable toward major in journalism. Intensive course dealing with the theme, content, copy, design, advertising, budget, finance, law and ethics of yearbook development and production.

JOUR 498 Topics in Scholastic Journalism (1-3) Repeatable to 99 credits if content differs. Seminars on specialized areas on the practice of scholastic journalism.

JWST -- Jewish Studies

JWST 121 Jewish Civilization (3) Also offered as HIST126. Credit will be granted for only one of the following: JWST121 or HIST126. Jewish history, culture and society from Biblical times to the present.

JWST 141 American Jewish Experience (3) Also offered as HIST106. Credit will be granted for only one of the following: JWST141 or HIST106. History of the Jews in America from Colonial times to the present. Emphasis on the waves of migration from Germany and Eastern Europe; the changing nature of the American Jewish community and its participation in American social, economic, and political life.

JWST 219 Special Topics in Jewish Studies (3) Repeatable to 9 credits if content differs.

JWST 227 Reconstructing the Civilization of Ancient Mesopotamia (3) Also offered as HIST280. Not open to students who have completed HEBR440. Credit will be granted for only one of the following: JWST227 or HIST280. Formerly HEBR440. History and culture of Ancient Mesopotamia, as reconstructed from archeology, language, and texts of the region. Emphasis on culture, literature, religion, and institutions.

JWST 230 Introduction to the Rabbinic Movement: History and Culture (3) Also offered as HIST281. Credit will be granted for only one of the following: JWST230 or HIST281. The emergence of the Rabbinic movement after the destruction of the Temple in 70 CE through the 7th Century CE. The essential texts of ancient rabbinic literature.

JWST 231 Jewish Texts and Cultures of the Second Temple Period (3) Credit will be granted for only one of the following: JWST231, JWST219C (Fall 2005), JWST219F (Fall 1998), HIST219C (Fall 2005), or HIST219D (Fall 1998). An introduction to the literature, history, and culture of Jews in the period between the sixth century BCE and the second century CE. Special topics may include the rise of the formation of the biblical canon, scriptural interpretation, sectarian and revolutionary movements, and growth of the diaspora.

JWST 234 History of the Jewish People I (3) Also offered as HIST282. Credit will be granted for only one of the following: JWST234 or HIST282. Political, economic, social, and cultural development within Jewish history from the Biblical period to the late Middle Ages. Special attention to the emergence of Rabbinic Judaism and its subsequent encounter with medieval Christian and Islamic civilizations.

JWST 235 History of the Jewish People II (3) Credit will be granted for only one of the following: HIST283, HIST283H, JWST235, or JWST235H. Political, economic, social and cultural development within Jewish history from the end of the Middle Ages to the present. Special attention to the twentieth century developments including the Nazi Holocaust and its aftermath, the Zionist movement and the creation of the State of Israel, and the rise of the contemporary American-Jewish community.

JWST 250 Fundamental Concepts of Judaism (3) Also offered as PHIL234. Not open to students who have completed PHIL234. Credit will be granted for only one of the following: JWST250 or PHIL234. A conceptional introduction to Judaism, analyzing its fundamental concepts from both analytical and historical perspectives. Discussion of "normative" Judaism as well as other conceptions of Judaism. Topics include: God, the Jewish people, authority, ethics, the sacred and the profane, particularism and universalism.

JWST 251 Authority, Faith, and Reason in Judaism (3) Also offered as PHIL235. Not open to students who have completed PHIL235 or HEBR298J. Credit will be granted for only one of the following: JWST251 or PHIL235. A broad survey of the concepts of authority, faith, and reason in Jewish tradition from the Bible to the modern period, and their interrelationships.

JWST 260 Introduction to Classical Hebrew I (3) Prerequisite: HEBR111 or equivalent. Also offered as HEBR298A. Not open to students who have completed HEBR401. Formerly HEBR401. Readings of the Bible and other classical texts in original Hebrew. Emphasis on classical grammar and vocabulary, and reading of textual passages.

JWST 261 Introduction to Classical Hebrew II (3) Prerequisite: JWST260 or permission of department. Also offered as HEBR298B. Not open to students who have completed HEBR402. Formerly HEBR402. Continuation of JWST 260. Readings in the Bible and other classical texts in original Hebrew. Emphasis on classical grammar and vocabulary, and reading of textual passages.

JWST 262 The Hebrew Bible: Narrative (3) Also offered as ENGL262. Not open to students who have completed HEBR223. Credit will be granted for only one of the following: JWST262 or ENGL262. Formerly HEBR223. Selected readings from narrative sections of the Hebrew Bible stressing the new literary approaches to the biblical text. In English; no knowledge of Hebrew required.

JWST 263 Hebrew Bible: Poetry and Prophecy (3) Also offered as ENGL263. Not open to students who have completed HEBR224. Credit will be granted for only one of the following: JWST263 or ENGL263. Formerly HEBR224. Readings of poetic and prophetic selections from the Hebrew Bible. Analysis of devices and their rhetorical effect. Comparison of biblical poetry with other poetry of the ancient Near East. In English; no Hebrew required.

JWST 270 Fantasy and Supernatural in Jewish Literature (3) Two hours of lecture and one hour of discussion/recitation per week. Credit will be granted for only one of the following: HONR219O, JWST219O, or JWST270. Formerly JWST219O. An examination of Jewish fantastical and supernatural literature from ancient to modern times, tracing how such stories have addressed essential questions of good and evil, power and powerlessness within a Jewish framework. Topics include intersections of Jewish and non-Jewish cultures.

JWST 272 Introduction to Jewish Literature (3) Not open to students who have completed HEBR231. Formerly HEBR231. A survey of Jewish literature and introduction to methods of reading literature in general and Jewish literature in particular. Concern with what makes a literary corpus Jewish and other issues of canonicity. All texts in English translation.

JWST 275 The Jew and the City through the Centuries (3) Also offered as HIST286. Credit will be granted for only one of the following: HIST286 or JWST275. Jewish urban experience from ancient times to the present. Public space and private. The city and the sacred. Jewish ghettos and quarters. The struggle over modern Jerusalem.

JWST 281 Yiddish I (3) Also offered as GERM148Y. Not open to students who have completed GERM148Y. Introduction to the Yiddish language, with emphasis on speaking, reading, and writing skills. Students will also learn the history of the language, its significance to Jewish culture, its origins and basic structure.

JWST 282 Elementary Yiddish II (3) Prerequisite: JWST281 or GERM148Y or permission of department. Also offered as GERM149Y. Not open to students who have completed GERM149Y. Continuation of JWST281.

JWST 283 Intensive Elementary Yiddish I (4) Not open to students who have completed GERM149Y or JWST282. Credit will be granted for only one of the following: GERM149y, JWST282 or JWST283. An intensive introduction to the Yiddish language. Course covers one year of language instruction in one semester.

JWST 298 Elementary/Introductory Language Module for Jewish Studies (1-3) Prerequisite: HEBR212, JWST282 or permission of department. Repeatable to 9 credits if content differs. A supplementary language module for students enrolled in designated Jewish Studies classes. Language of instruction English, texts in original language.

JWST 304 Critical Approaches to Israeli Culture (3) Formerly:JWST419B and JWST419K. Also offered as HEBR498L. An examination of the intersections of literature, society, philosophy, and politics in the making of modern Israeli culture. Special attention will be paid to the Zionist emphasis on making "new" Jews and its implications when expressed in literature and society.

JWST 319 Special Topics in Jewish Studies (1-6) May be repeated to a maximum of 12 credits. Topics in Jewish Studies.

JWST 324 Biblical History and Culture (3) Also offered as HIST321. Not open to students who have completed HEBR333 or HIST321. Credit will be granted for only one of the following: JWST324 or HEBR333 or HIST321. Formerly HEBR333. Study of the political, social, and religious development of the Jewish nation from its inception to its return from exile in Babylonia around 536 C.E. Focus on biblical texts, archeological finds, and source materials from neighboring cultures to reconstruct political history and the development of religious concepts.

JWST 325 Jews and Judaism in Antiquity I: Sixth Century BCE through the (3) First Century CE Also offered as HIST370. Credit will be granted for only one of the following: JWST325 or HIST370. Political, social, and religious history of the Jews from the Persian Period to the Judean Revolt of 66-70CE. Special attention to the rise of sectarian and revolutionary movements.

JWST 326 Jews and Judaism in Antiquity II: First through Seventh Centuries (3) Also offered as HIST371. Credit will be granted for only one of the following: JWST326 or HIST371. Political, social, and religious history of the Jews from the destruction of the Jerusalem Temple in 70 CE to the Muslim conquests. Special attention to the political transformations in Judaism under late Roman Christianity, and the rise of the Rabbinic movement.

JWST 331 Early Christianity: Jesus to Constantine (3) Also offered as HIST320. Not open to students who have completed HIST320. Credit will be granted for only one of the following: JWST331 or HIST320. Social and religious history of early Christianity from its origin in the first century to the reign of Constantine.

JWST 333 Jews in Early Modern Times 1450-1750 (3) Recommended: HIST282/JWST234. Also offered as HIST373. Not open to students who have completed HIST418C/JWST419C (Fall 2006, Fall 2004) or HIST419C/JWST419Y (Spring 2001). Credit will be granted for only one of the following: JWST333, HIST373, HIST418C/JWST419C (Fall 2006, Fall 2004) or HIST419C/JWST419Y (Spring 2001). Formerly JWST419C. Emergence of new powerful population centers, religious and cultural creativity, new forms of community, and radical messianic movements.

JWST 342 History of Zionism and the State of Israel (3) Also offered as HIST376. Credit will be granted for only one of the following: JWST342 or HIST376. Ideological and political factors leading to the establishment of a secular Jewish state in 1948; Zionist thought of Herzl, Ahad Haam, the socialist and religious Zionists, and the revisionists; diplomatic activities; Arab-Israel conflict; post-1948 Israeli society.

JWST 343 Modern Jewish History I: The Road to Emancipation, 1650-1870 (3) Also offered as HIST374. Credit will be granted for only one of the following: JWST343 or HIST374. Social, political, economic, and cultural change in the Jewish world since 1650. Emphasis on emancipation, assimilation, and new forms of Jewish identity in Western and Eastern European Jewry from the 17th to the 20th centuries.

JWST 344 Modern Jewish History II: World Jewry Since 1870 (3) Also offered as HIST375. Credit will be granted for only one of the following: JWST344 or HIST375. Continuation of JWST343: Social, political, economic, and cultural change in the Jewish world since 1870. Emphasis on emancipation, assimilation, and new forms of Jewish identity in Western and Eastern European Jewry from the 19th Century to the present.

JWST 345 The Holocaust of European Jewry (3) Also offered as HIST307. Credit will be granted for only one of the following: JWST345 or HIST307. Roots of Nazi Jewish policy in the 1930s and during World War II: the process of destruction and the implementation of the "final solution of the Jewish problem" in Europe, and the responses made by the Jews to their concentration and annihilation.

JWST 376 Literature of the Holocaust (3) An exploration of the primary texts of the literary canon of the Holocaust: Night by Elie Wiesel, The Diary of Anne Frank, Maus by Art Spiegelman, and other lesser known works. Exploration of the strategies used by authors of Holocaust narratives to depict a subject matter that has long been considered impossible, and to some extent, unethical to render in a work of art.

JWST 381 Introduction to Hebrew Cultural Studies (3) Prerequisite: HEBR314 or permission of instructor. Not open to students who have completed HEBR381. Credit will be granted for only one of the following: HEBR381 or JWST381. Critical study of Israeli culture with special emphasis or literature film, and art as sites of struggle over political and social meaning during times of cultural transformation in Israel. Topics will focus on the historical development of Israeli identity and gender, in particular within the military and Zionist youth movements. Taught in Hebrew.

JWST 382 Israeli Media (3) Prerequisite: HEBR314 or permission of instructor. Also offered as HEBR382. Not open to students who have completed HEBR382. Credit will be granted for only one of the following: HEBR382 or JWST382. Examines various media genres in Israeli today: print news, magazines, television and radio news, print and video advertising, the internet, popular music on CD and the radio, video art and film and the self-representation of Israeli society and the interaction between media and society and culture. Taught in Hebrew.

JWST 408 Honors Seminar in Jewish Studies (3) Prerequisite: permission of department. Junior standing. An in-depth exploration of a theme in Jewish history, literature, culture or thought. Course subject and readings will vary from year to year, but will generally cut across periods, locations, or disciplines. Students are expected to engage the course material critically and to use the seminar as an opportunity to develop an independent research agenda.

JWST 409 Research Seminar in Jewish Studies (3-4) Prerequisite: two upper-level courses in an appropriate area of Jewish Studies or permission of department. Repeatable to 9 credits if content differs. Formerly JWST309. A capstone course for Jewish Studies. Guides students through advanced source material and subject matter, research skills, and presentation techniques. A substantive paper based on independent research and analysis is one expected outcome.

JWST 419 Special Topics in Jewish Studies (3) Repeatable to 9 credits if content differs.

JWST 451 Issues in Jewish Ethics and Law (3) Prerequisite: three credits in philosophy or Jewish studies (excluding Hebrew language), or permission of department. Also offered as PHIL433. Not open to students who have completed PHIL433 or HEBR451. Credit will be granted for only one of the following: PHIL433 or JWST451 or HEBR451. Formerly HEBR451. Philosophical and meta-legal questions concerning the nature of Jewish law and its relation to morality.

JWST 452 The Golden Age of Jewish Philosophy (3) Prerequisite: three credits in philosophy or permission of department. Also offered as PHIL417. Not open to students who have completed PHIL417. Credit will be granted for only one of the following: JWST452 or PHIL417. Jewish philosophy from Maimonides in the 12th Century to the expulsion of the Jews from Spain at the end of the 15th Century. Topics include the limitations of human knowledge, creation of the world, foreknowledge and free will, and the existence of God.

JWST 453 Philosophy of Spinoza (3) Prerequisite: six credits in philosophy or permission of department. Also offered as PHIL424. Not open to students who have completed PHIL424. Credit will be granted for only one of the following: JWST453 or PHIL424. An investigation of the metaphysical, ethical, and political thought of the 17th century philosopher Benedict Spinoza.

JWST 459 Readings in Medieval Hebrew (3-4) Prerequisite: HEBR313 or permission of instructor. Repeatable to 9 credits if content differs. Not open to students who have completed JWST466. Credit will be granted for only one of the following: JWST459_ or JWST466. Formerly JWST466. Readings and analysis of Hebrew texts and literature from the Middle Ages. Language of instruction in English; all texts in Hebrew.

JWST 468 Readings in the Hebrew Bible (3-4) Prerequisite: HEBR313 or permission of instructor. Formerly HEBR441 and HEBR442. Repeatable to 9 credits if content differs. Readings in the Hebrew text of the Bible. Emphasis in close reading, grammar analysis, and modern interpretations of the Bible. Language of instruction English; all texts in Hebrew.

JWST 469 Readings in Rabbinic Hebrew (3-4) Prerequisite: HEBR313 or permission of instructor. Repeatable to 9 credits if content differs. Readings in classical rabbinic texts and related corpora. Emphasis on grammar and reading skills as well as critical analysis of the material. Language of instruction: English; all texts in original language.

JWST 471 Modern Hebrew Literature in Translation (3) An exploration of modern Hebrew prose, poetry, and literary essays written from the 1880s through the present in Europe, Palestine, and Israel. An investigation of the challenges confronting authors such as Mendele Mokher Sforim, Avraham Mapu, Chaim Nahman Bialik, Dvorah Baron, S.Y. Agnon, and David Fogel as they tried to create a contemporary secular literature out of an ancient sacred language. All texts in English translation.

JWST 478 Readings in Modern Hebrew (3) Prerequisite: HEBR313 or permission of instructor. Junior standing. Repeatable to 12 credits if content differs. Variable topics in Modern Hebrew Literature.

JWST 491 Judaism and the Construction of Gender (3) Also offered as WMST491. Credit will be granted for only one of the following: JWST419X, JWST491 or WMST491. Formerly JWST419X. The study of Jewish culture, religious practice, communal authority, and literature through the frame of such critical categories of analysis as gender, sexuality, masculinity, power, ethics, and the feminine.

JWST 493 Jewish Women in International Perspective (3) Prerequisite: one course in Women's Studies, preferably WMST200 or WMST250. Also offered as WMST493. Credit will be granted for only one of the following: JWST493 or WMST493. Using memoirs, essays, poetry, short stories, films, music and the visual arts, course will interrogate what it means/has meant to define oneself as a Jewish woman across lines of difference. Focus is largely on the secular dimensions of Jewish women's lives but will also explore the implications of Jewish law and religious practices for Jewish women. Our perspective will be international, including Ashkenazi and Sephardi women.

JWST 498 Advanced Language Module for Jewish Studies (1-3) Prerequisite: HEBR212, JWST282, or permission of department. A supplementary language module for students enrolled in designated Jewish Studies classes. Language of instruction English, texts in original language.

JWST 499 Independent Study in Jewish Studies (1-3) Prerequisite: permission of department. Repeatable to 6 credits if content differs.

KNES -- Kinesiology

KNES 130 Physical Education Activities: Coed (1-3) Formerly PHED130.

KNES 136 Physical Education Activities: Coed (1-3) Formerly PHED136.

KNES 182 Rhythmic Activities (2) Six hours of laboratory per week. Development of rhythmic sensitivity through analysis of rhythm and its application to movement, skills in folk, square and social dance and teaching techniques for use in schools and recreational programs.

KNES 183 Movement Content for Elementary School Children (3) Participation in movement activities with a focus on educational dance, gymnastics and games. Observation and analysis of movement behavior in relation to specific aspects of movement. Examination of relationships among movement forms.

KNES 190 Personal Fitness and Wellness (2) One hour of lecture and two hours of laboratory per week. For KNES and Physical Education Majors Only. Scientific principles, concepts, and techniques designing personal fitness and/or physical activity programs.

KNES 200 Introduction to Kinesiology (3) Two hours of lecture and one hour of discussion/recitation per week. Restricted to freshmen KNES majors or non-majors with less than 60 credits. Not open to non-major students who have completed over 60 credits. Credit will be granted for only one of the following: KNES200 or KNES289M. Formerly KNES289M. An overview of kinesiology, the interdisciplinary study of physical activity. Examines human motor behavior and its cultural forms such as sport from the physiological, psychological, sociological, historical, philosophical, and biomechanical perspectives.

KNES 218 Laboratory in Teaching (1) Prerequisite: permission of department. Repeatable to 2 credits. The course is designed to prepare the student for the student teaching experience by assisting in a class.

KNES 240 Exploring Cultural Diversity Through Movement (3) Cultural diversity through an analysis of the different meanings that movement activities serve within different cultural groups. Students will examine how cultural affiliations can influence why and how members of different cultural groups engage in movement activities.

KNES 245 Methods of Teaching Physical Education (3) Two hours of lecture and two hours of laboratory per week. Prerequisite: KNES183. Not open to students who have completed KNES314. Credit will be granted for only one of the following: KNES245 or KNES314. Pedagogical methods for teaching children and adolescents using direct and indirect styles and strategies. Application of educational philosophy and psychology principles to instruction, class organization and management in physical education.

KNES 260 Science of Physical Activity and Cardiovascular Health (3) Course details (1) the public health importance of and the processes underlying cardiovascular disease, (2) the risk factors for cardiovascular disease and the methods whereby they were identified, and (3) the principles of the scientific evidence supporting the use of physical activity to prevent cardiovascular disease.

KNES 282 Basic Care and Prevention of Athletic Injuries (3) Credit will be granted for only one of the following: KNES282 or KNES381. Formerly KNES381. Theoretical and practical foundations of the prevention, treatment and rehabilitation of athletically related injuries. Topics include: physical conditioning, preventive taping, recognition of injuries, first aid and CPR.

KNES 287 Sport and American Society (3) Sport will be related to such social problems as delinquency, segregation, collective behavior, and leisure; to social processes such as socialization, stratification, mobility, and social control; and to those familiar social institutions the family, the school, the church, the military, the economy, the polity, and the mass media.

KNES 289 Topical Investigations (1-6) Repeatable to 6 credits. Independent study by an individual student or a group of students in special areas of knowledge not covered by regularly scheduled courses.

KNES 290 Teaching Physical Activity and Fitness Concepts (3) Two hours of lecture and two hours of laboratory per week. Prerequisite: KNES190. Teaching practices for physical activity and fitness concepts appropriate for children and adolescents in school and recreational programs. Pedagogical methods, strategies, styles, and techniques that encourage program participation.

KNES 291 Teaching for Sequential Skill Development (3) Two hours of lecture and two hours of laboratory per week. Corequisite: KNES370. Introduction to motor skill teaching from novice to advanced performer. Techniques and technologies used in skill analysis, correction and feedback to enhance and assess performance.

KNES 292 Teaching Game Concepts and Tactics (3) Two hours of lecture and two hours of laboratory per week. Teaching progressions for game concepts and tactics. Sequential development of temporal and spatial concepts through progressively more complex offensive and defensive strategies.

KNES 293 History of Sport in America (3) The growth and development of sport in America. The transformation of sport within the perspective of American history, including class sport, professionalization, amateurism, and international involvement.

KNES 300 Biomechanics of Human Motion (4) Three hours of lecture and two hours of laboratory per week. Prerequisite: BSCI201, and MATH112 or MATH115 or placement in MATH140. Recommended: PHYS121. The study of human movement and the physical and physiological principles upon which it depends. Body mechanics, posture, motor efficiency, sports, the performance of a typical individual and the influence of growth and development upon motor performance.

KNES 314 Methods in Physical Education (3) Two hours of lecture and two hours of laboratory per week. Prerequisite: KNES 183. Application of educational philosophy and principles to class organization and techniques of teaching physical education.

KNES 333 Physical Activity for Students with Special Needs (3) Implications of Federal and State regulations for planning and implementing physical activity programs for students with special needs. Evaluation strategies for assessing motor performance and the role of physical activity in educational programs for these students.

KNES 335 Swimming Pool Management (2) Analysis of the position of the swimming pool manager. The systematic treatment of swimming pool water; swimming pool first aid; and laws pertaining to swimming pool operation. Qualifies the student for a pool operator's license in most Maryland counties.

KNES 340 Theory of Coaching Athletics (2) General theory and practice of coaching selected competitive sports found in secondary schools and community recreation programs.

KNES 350 The Psychology of Sports (3) An exploration of personality factors, including but not limited to motivation, aggression and emotion, as they affect sports participation and motor skill performance.

KNES 351 Contemporary Issues in American Sport (3) Prerequisite: KNES287. Seminar/discussion of theoretical and practical issues in contemporary sport.

KNES 355 Sport Management (3) Prerequisite: KNES287. Junior standing. Credit will be granted for only one of the following: KNES355 or KNES498M. Formerly KNES498M. Application of concepts and issues related to management principles and business concerns across various sections of the sport industry. Principles pertaining to the management of sport organizations.

KNES 357 Sport and Culture in the Global Marketplace (3) Two hours of lecture and three hours of discussion/recitation per week. Prerequisite: KNES287 or permission of department. Credit will be granted for only one of the following: KNES357 and KNES389A. Formerly KNES389A. Through study abroad experience, critically appraise similarities and differences in the management, production, meaning, promotion and consumption of sport and culture in the global marketplace.

KNES 360 Physiology of Exercise (3) Two hours of lecture and two hours of laboratory per week. Prerequisites: BSCI201 and BSCI202; or permission of department. A study of the physiology of exercise, including concepts of work, muscular contraction, energy transformation, metabolism, oxygen debt, and nutrition and athletic performance. Emphasis on cardiovascular and respiratory function in relation to physical activity and training.

KNES 370 Motor Development (3) Motor development across the life span. The developmental sequences of motor skills from birth to old age; neuromaturation of neuromuscular system; analysis of the underlying mechanisms of motor skill development; and correlates of motor development.

KNES 371 Elementary School Physical Education: A Movement Approach (3) Prerequisites: KNES183 and KNES370. Formerly KNES421. An analysis of movement philosophy and content, focusing upon cognitive, psychomotor and affective developmental characteristics in relation to progression and planning of games, educational dance and educational gymnastics for elementary school age children.

KNES 385 Motor Control and Learning (3) Physiological and cognitive bases for motor control and their applications to the acquisition of movement skills and understanding of movement disorders. Topics include: neurophysiology, motor control theory, sensory/perceptual processes, perception-action coupling, information processing, memory, attention, individual differences, motivation, practice organization and role of feedback.

KNES 386 Experiential Learning (3-6) Prerequisite: Learning Proposal approved by faculty sponsor, and student's internship sponsor. Junior standing.

KNES 389 Topical Investigations (1-3) Repeatable to 6 credits. Independent study by an individual student or a group of students in special areas of knowledge not covered by regularly scheduled courses.

KNES 390 Practicum/Internship in Teaching Physical Education (3) One hour of lecture and four hours of laboratory per week. Corequisite: KNES491. Teaching of children in a physical education setting. Specific emphasis on the development of a professional portfolio demonstrating understanding of curriculum development, lesson planning, progressions and evaluation of teaching performance.

KNES 398 Honors Seminar (1) One hour of discussion/recitation per week. Prerequisite: participation in honors program. Repeatable to 3 credits. Guided discussion of research topics of current interest.

KNES 399 Honors Thesis (3) Prerequisites: KNES398H; and candidacy for honors in Kinesiology. Advisement will be on the individual basis. Thesis must be defended in the honors seminar.

KNES 402 Biomechanics of Sport (3) Prerequisite: KNES300. Mechanical determinants influencing sport techniques. A quantitative, scientific basis for sport analysis with emphasis on the application to numerous sport activities. Evaluation and quantification of the filmed performance of athletes.

KNES 440 Psychology of Athletic Performance (3) Prerequisite: KNES350. Junior standing. Credit will be granted for only one of the following: KNES498P, KNES689Z, or KNES440. Formerly KNES498P. Examines the psychological factors, mechanisms, and processes in athletic performance. Utilizes a social psychological approach to focus on the study and review of individual performance in both the interpersonal and social context.

KNES 451 Children and Sport: A Psychosocial Perspective (3) Prerequisite: KNES350 and junior standing. Examination of youth sports from a psychosocial perspective, including the impact of highly structured sports on young athletes and the complex social network of coaches, parents and peers.

KNES 452 Martial Arts (Wu Shu) in Contemporary China (3) Prerequisite: Completion of CORE Human Diversity Course. Senior standing. Credit will be granted for only one of the following: KNES452 or KNES642. The roots and influences of martial arts in traditional and contemporary China.

KNES 455 Scientific Bases of Athletic Conditioning (3) Prerequisite: KNES360. An examination of physical fitness/athletic conditioning programs stressing the practical application of exercise physiology theory for enhancing athletic performance. Cardiovascular considerations, strength and power development, nutrition, speed, muscular endurance, environmental considerations and ergogenic aids.

KNES 457 Managing Youth Programs: Educational, Fitness and Sport (3) Prerequisite: KNES287 and KNES370. Junior standing. Credit will be granted for only one of the following: KNES498Y or KNES457. Formerly KNES498Y. An examination of the basic functions involved in managing physical education, fitness, and youth sports programs. Focus on leadership skills, organizational management, and techniques for applying learned skills in a variety of organizational settings that serve the nation's youth.

KNES 461 Exercise and Body Composition (3) Prerequisite: KNES360. Physiological concepts relating body composition factors to exercise and human performance. The scientific basis for the establishment and evaluation of conditioning programs where body composition may play an important role, such as weight control and athletics.

KNES 462 Neural Basis of Human Movement (3) Prerequisites: {BSCI201; and BSCI202; and KNES385} or permission of department. An introduction to the neural substrates which underlie postural and volitional movement. Neuroanatomical and neurophysiological basis of motor functioning; past and present conceptualizations of motor control and coordination; movement disorders; and maturation of the neuromuscular system.

KNES 464 Exercise Metabolism: Role in Health and Disease (3) Prerequisite: BSCI201, BSCI202, and KNES360. Recommended: BCHM261. Credit will be granted for only one of the following: KNES464 or KNES498L. Formerly KNES498L. Examines the role of metabolism in kinesiology, especially as it relates to physical inactivity, health and disease. Includes bioenergetics, substrate utilization, cell signaling, and metabolic gene expression and their impact on chronic health conditions or disease.

KNES 465 Physical Activity and Disease Prevention and Treatment (3) Prerequisite: KNES360. Credit will be granted for only one of the following: KNES465 or KNES498A. Formerly KNES498A. Critically examines the scientific evidence that supports the use of physical activity to prevent and treat age-related diseases, including cardiovascular disease, diabetes, abnormal lipoprotein-lipid levels, hypertension, obesity, osteoporosis and cancer.

KNES 466 Graded Exercise Testing (3) Two hours of lecture and three hours of laboratory per week. Prerequisite: KNES360 or permission of department. Functional and diagnostic examination of the cardiovascular responses to graded exercise testing. Emphasis on electrophysiology, mechanisms of arrhythmias, normal electrical activation of the heart, axis termination and the normal 12-lead electrocardiogram.

KNES 467 Genetics in Physical Activity and Sport (3) Prerequisite: KNES360. Corequisite: STAT100 or equivalent. Junior standing. Credit will be granted for only one of the following: KNES467 or KNES498Q. Formerly

KNES498Q. Dedicated to understanding the role of genetics in kinesiology, especially within the contexts of physical activity and sport. Specific genes and phenotypes will be explored.

KNES 476 Honors Thesis Proposal (3) Restricted to KNES Honors students only. Corequisite: KNES478. Senior standing. Credit will be granted for only one of the following: KNES498R or KNES476. Formerly KNES498R. Development of honors thesis proposal based on preliminary research and literature review. Presentation of formal proposal to the thesis committee and fellow honors students.

KNES 477 Honors Thesis (3) Restricted to KNES Honors students only. Prerequisite: KNES476. Corequisite: KNES478. Senior standing. Credit will be granted for only one of the following: KNES399 or KNES477. Formerly KNES399. Advisement will be on the individual basis. Thesis must be defended in the honors seminar.

KNES 478 Honors Seminar (1-3) Restricted to KNES Honors students only. Junior standing. Repeatable to 4 credits if content differs. Credit will be granted for only one of the following: KNES398 or KNES478. Formerly KNES398. Guided discussion of research topics of current interest.

KNES 480 Measurement in Physical Education (3) Two hours of lecture and two hours of laboratory per week. Prerequisite: MATH110. A study of the principles and techniques of educational measurement as applied to the teaching of physical education; study of the functions and techniques of measurement in the evaluation of student progress toward the objectives of physical education and in the evaluation of the effectiveness of teaching.

KNES 481 Biophysical Aspects of Human Movement (3) Prerequisites: KNES300, KNES360, KNES370, and KNES385. Scientific principles and research techniques in the investigation of the biophysical basis of human movement.

KNES 482 Socio-behavioral Aspects of Human Movement (3) Prerequisites: KNES287, KNES293, and KNES350. Derivation, formulation, and application of research in the socio-behavioral aspects of human movement.

KNES 483 Sport Marketing and Media (3) Prerequisite: KNES287. Junior standing. Not open to students who have completed KNES498L prior to the Fall 2001 semester. Industry practices in sport marketing and media. Marketing strategies and consumer behavior in different sport contexts. Critical examination of selected social and economic issues related to the buying and selling of sport.

KNES 484 Sporting Hollywood (3) Prerequisite: KNES287 and KNES293. Junior standing. Credit will be granted for only one of the following: KNES484 and KNES498N. Formerly KNES498N. Popular representations of sport within the film media related to wider social discourses on bodies and the politics of various categories of subjectivity (gender, sexual, racial, class and national).

KNES 485 Sport and Globalization (3) Two hours of lecture and two hours of discussion/recitation per week. Prerequisite: KNES287. Junior standing. Credit will be granted for only one of the following: KNES485 and KNES498T. Formerly KNES498T. Examination of sport culture from a global perspective; focuses on theorizing the similarities and differences between various national sporting cultures.

KNES 487 Women, Sports and Culture (3) Prerequisite: KNES287. Junior standing. Credit will be granted for only one of the following: KNES498E or KNES487. Formerly KNES498E. A study of the historical barriers to women's participation in physical activity, efforts to dismantle those barriers, and the differentiation that exists in women's sport and physical culture today. Exploration of the historical and contemporary factors involving female athletes in U.S. culture.

KNES 489 Field Laboratory Projects and Workshop (1-6) Repeatable to 6 credits. Workshops and research projects in special areas of knowledge not covered by regularly structured courses.

KNES 491 The Curriculum in Physical Education (3) Prerequisites: KNES300, KNES360, and KNES371. Curriculum sources, principles, and planning concepts, with emphasis on using valid criteria for the selection of content for physical education programs.

KNES 496 Quantitative Methods (3) Statistical techniques most frequently used in research pertaining to physical education. Effort is made to provide the student with the necessary skills and to acquaint the student with the interpretations and applications of these techniques.

KNES 497 Independent Studies Seminar (3) Prerequisite: ENGL391, ENGL393, ENGL394, or ENGL395; and STAT100 or equivalent. 100 semester hours. Senior standing. For KNES majors only. Discussions of contemporary issues vital to the discipline, critiques of research in the student's area/areas of special interest, completion of a major project where the student will be asked to demonstrate the ability to carry out investigative processes in problem solving and critical writing under faculty direction.

KNES 498 Special Topics in Kinesiology (3) Prerequisite: permission of department. Repeatable when the subject matter is different. Topics of special interest in areas not covered by regularly scheduled courses.

KORA -- Korean

KORA 101 Elementary Korean I (3) Prerequisite: permission of department. For non-Heritage students with no background in Korean. Introduction to the Korean language. Primary emphasis on oral skills, but Hangul, the Korean alphabet, will also be introduced.

KORA 102 Elementary Korean II (3) Prerequisite: KORA101 or equivalent. For non-Heritage students only. Instructor permission required for new students. Continued training in elementary spoken and written Korean.

KORA 201 Intermediate Korean I (3) Prerequisite: KORA102 or permission of instructor. An intermediate-level course designed for non-Heritage students. It begins the second year of instruction in the University's two-track Korean Program.

KORA 202 Intermediate Korean II (3) Prerequisite: KORA201 or permission of instructor. The second stage of an intermediate-level course designed for non-Heritage students. It continues the second year of instruction in the University's two track Korean Program.

KORA 211 Introductory Reading for Speakers of Korean I (3) Not open to students who have completed two or more years of schooling in Korea. Designed to improve the language skills of students already conversant in Korean; instruction entirely in Korean; introduction in hangul; reading and writing of simple journal entries.

KORA 212 Introductory Reading for Speakers of Korean II (3) Prerequisite: KORA211. Not open to students who have completed four or more years of schooling in Korea. Continuation of KORA211; grammar, style, usage, and vocabulary of written Korean.

KORA 241 History of the Korean Language (3) The origins of the Korean language and its development from earliest recorded times to the present. The relationship of Korean to other languages. In English.

KORA 242 Introduction to Korean Linguistics (3) An introduction to the sound system and grammatical structure of the modern Korean language; Korean writing and orthography; Korean language and society, with an emphasis on speech styles. In English.

KORA 311 Korean for Heritage Speakers, Advanced-Low I (3) Prerequisite: KORA212 or permission of instructor. Not open to students who have completed six or more years of schooling in Korea. Begins the second year of Heritage-language instruction in the University's two-track Korean Program.

KORA 312 Korean for Heritage Speakers, Advanced-Low II (3) Prerequisite: KORA311 or permission of instructor. Not open to students who have completed eight or more years of schooling in Korea. Concludes the second year of the Heritage-language instruction in the University's two-track Korean Program.

KORA 398 Special Topics in Korean Studies (3) Repeatable to 9 credits if content differs. Study of particular aspect of Korean language, literature, and/or culture. Topic and language of instruction to be announced when course is offered.

KORA 499 Independent Study Korean (1-3) Prerequisite: permission of instructor. Repeatable to 6 credits if content differs. Independent study under faculty supervision.

LARC -- Landscape Architecture

LARC 120 Digital Fundamentals (2) Prerequisite: permission of LARC program. For LARC majors only. Not open to students who have completed LARC489A. Credit will be granted for only one of the following: LARC120 or LARC489A. Formerly LARC489A. An introduction to fundamental computer tools and techniques commonly used in design communication and landscape architecture practice. Non-drafting computer tools will be used to orient basic digital image capture, manipulation, and presentation formatting.

LARC 140 Graphic Fundamentals Studio (4) Two hours of lecture and four hours of laboratory per week. Prerequisite: permission of LARC program. Recommended: LARC160 (concurrently). For LARC majors only. Basic techniques and application of various media for graphic communication associated with landscape architecture.

LARC 141 Design Fundamentals Studio (4) Two hours of lecture and four hours of laboratory per week. Prerequisite: LARC140 and permission of LARC program. Recommended: LARC263 (concurrently). Sophomore standing. For LARC majors only. Fundamentals of basic design focusing on creative problem solving associated with landscape architecture.

LARC 160 Introduction to Landscape Architecture (3) Two hours of lecture and one hour of discussion/recitation per week. History, theory, philosophy and current practice of the profession of landscape architecture. Explores the interactive relationship between humans and their environment by examining people's perceptions of and changing attitude towards the landscape, as well as, an examination of how these are related to ecological and cultural influences.

LARC 221 Digital Design Tools (3) Prerequisite: LARC120 and LARC141. Recommended: LARC240 and LARC265. Sophomore standing. For LARC majors only. The development and application of computing skills as used by the landscape architecture profession. This Computer-Aided Design and Drafting (CADD) course develops computer drafting using a variety of software programs. It also introduces students to Geographic Information Systems (GIS) mapping technologies.

LARC 240 Graphic Communication and Design Studio (4) Two hours of lecture and four hours of laboratory per week. Prerequisites: LARC141 and LARC263. Corequisites: LARC221 and LARC265. Sophomore standing. For LARC majors only. Exploration of graphic presentation techniques and original concept development for landscape architecture planning and design.

LARC 263 History of Landscape Architecture (3) A survey of landscape architecture history from the ancient Western civilizations to the twentieth century with consideration of parallel developments in the Eastern World, European Africa and the Americas.

LARC 265 Site Analysis and Ecological Principles (3) Two hours of lecture and one hour of discussion/recitation per week. Prerequisite: LARC141 and Permission of LARC program. Corequisite: LARC240 and LARC221. Sophomore standing. For LARC majors only. Credit will be granted for only one of the following: LARC265 or ARCH460. Principles and methods of site analysis with an emphasis on the application of ecological principles in landscape architecture, architecture and planning.

LARC 320 Principles of Site Engineering (3) Two hours of lecture and four hours of laboratory per week. Prerequisite: LARC221 and permission of LARC program. Corequisite: LARC340. Junior standing. For LARC majors only. Also offered as PLSC320. Formerly LARC364. The study and application of landscape construction principles as applied to grading, drainage, site layout, storm water management, and vehicular and pedestrian circulation.

LARC 321 Landscape Structures and Materials (3) Two hours of lecture and four hours of laboratory per week. Prerequisites: LARC320 and LARC340. For LARC majors only. An examination of the use, properties, and detailing of materials used in landscape construction. The use and design of structures in the landscape.

LARC 340 Site Planning and Design Studio (5) Two hours of lecture and six hours of laboratory per week. Prerequisites: LARC221, LARC240, and LARC265. Corequisite: LARC320. Junior standing. For LARC majors only. An examination of the influence of landscape character and site features (natural and cultural) on landscape architecture, architecture and planning through application in the studio setting.

LARC 341 Regional Design Studio (5) Two hours of lecture and six hours of laboratory per week. Prerequisites: LARC320 and LARC340. Junior standing. For LARC majors only. An examination of the landscape architect's role within the interdisciplinary regional design field incorporating GIS technologies, spatial modeling, and the regional design process.

LARC 388 Honors Thesis Research (3-6) Prerequisite: admission to AGNR Honors Program. Repeatable to 6 credits if content differs. Undergraduate honors thesis research conducted under the direction of an AGNR faculty member in partial fulfillment of the requirements of the College of AGNR Honors Program. The thesis will be defended to a faculty committee.

LARC 389 Internship in Landscape Architecture (3) Prerequisites: LARC221, LARC240, and LARC265. Junior standing. For LARC majors only. Repeatable to 6 credits. A supervised internship where students earn credit for work experience related to their career goals. Each student must keep a work log, work on a special project, and produce a report related to this project. An evaluation from the external supervisor of the project is required. Participation requires application to the internship advisor in the preceding semester.

LARC 398 Seminar (1)

LARC 420 Professional Practice (3) Prerequisite: LARC321. For LARC majors only. An introduction to and comparative study of the professional concerns of design firms. Focus on planning, legal, ethical, marketing and management considerations of interdisciplinary practices.

LARC 440 Urban Studio Design (5) Two hours of lecture and six hours of laboratory per week. Prerequisites: LARC321, LARC340, and LARC341. For LARC majors only. The landscape architect's role within the interdisciplinary urban design process, focusing on urban site design issues. Pedestrian friendly site design and the future of sustainable development will be studied.

LARC 450 Environmental Resources (3) Prerequisite: ENST200 or permission of department. A review of ecosystems and an examination of planning strategies for preservation, conservation, management and development of sensitive natural and cultural landscape resources in the mid-Atlantic region.

LARC 451 Sustainable Communities (3) Explores concepts, strategies and examples of community design which address the needs of a growing population while preserving the environment and its resources.

LARC 460 Landscape and Identity: Placemaking Across World Cultures (3) Prerequisite: LARC240 or permission of department. Junior standing. Not open to students who have completed LARC489P. Credit will be granted for only one of the following: LARC460 or LARC489P. Formerly LARC489P. A cross cultural experience that emphasizes the integration of cultural diversity, individual identity and placemaking skills introduced through the landscape architecture curriculum. Explores the landscape as intimately connected to their individual selves and to the collective sense of community. Examines how the mixture of social-cultural systems, on a global scale, impacts the way we shape our built environment. Investigates these phenomena theoretically and analytically through team and individual projects, lectures, films, discussions and presentations.

LARC 470 Landscape Architecture Seminar (3) Two hours of lecture and one hour of discussion/recitation per week. Prerequisites: LARC321 and LARC341. Corequisite: LARC440. Senior standing. For LARC majors only. A combination of self-directed study, seminar, and lecture formats. An introduction to aspects of research methods, critical analysis, and proposal writing with a focus on urban and community design.

LARC 471 Capstone Studio: Community Design (5) Two hours of lecture and six hours of laboratory per week. Prerequisites: LARC440 and LARC470. Senior standing. For LARC majors only. A capstone experience that emphasizes the integration of critical thinking skills and methodologies introduced throughout the landscape architecture curriculum. Students apply design and analysis methodologies, evaluate alternative solutions, involve community residents and engage in final design development, using the master plan and site design process, report writing, and oral and graphic presentations. Final presentations are open to the university and the community.

LARC 489 Special Topics in Landscape Architecture (1-4) Prerequisite: permission of department. Repeatable to 4 credits if content differs. Credit according to time scheduled and organization of course. A lecture and/or studio course organized as an in-depth study of a selected specialization of landscape architecture not covered by existing courses.

LARC 499 Independent Studies in Landscape Architecture (1-4) Prerequisite: 12 credits in LARC or permission of department. For LARC and NRSC majors only. Repeatable to 4 credits if content differs. Independent studies in landscape architecture including field, studio or library research under the direction of a faculty member.

LASC -- Certificate in Latin American Studies

LASC 234 Issues in Latin American Studies I (3) Two hours of lecture and one hour of discussion/recitation per week. Also offered as SPAN234 and PORT234. Credit will be granted for only one of the following: LASC234 or SPAN234 or PORT234. Interdisciplinary study of major issues in Latin America and the Caribbean, including Latin America's cultural mosaic, migration and urbanization. Democratization and the role of religions. Taught in English.

LASC 235 Issues in Latin American Studies II (3) Two hours of lecture and one hour of discussion/recitation per week. Also offered as SPAN235 and PORT235. Credit will be granted for only one of the following: LASC235 or SPAN235 or PORT235. Major issues shaping Latin American and Caribbean societies including the changing constructions of race, ethnicity, gender and class as well as expressions of popular cultures and revolutionary practices. A continuation of LASC/PORT/SPAN234, but completion of 234 is not a prerequisite. Taught in English.

LASC 403 Research and Information Sources in Latin American Studies (1) Two hours of lecture per week. Corequisite: LASC458;. Recommended: LASC234 and LASC235. Senior standing. Also offered as SPAN403. A foundational course in Latin American Studies information sources. Students will devise a search strategy and explore reference materials available to the Latin American Studies researcher.

LASC 423 Research Sources and Methods in Latin America Studies (3) Research methodologies in Latin American studies.

LASC 448 Special Topics in Latin American Studies (3) Junior standing. Repeatable to 6 credits if content differs. Intensive study of a selected topic related to Latin American Studies.

LASC 458 Senior Capstone Course in Latin American Studies (3) Three hours of lecture per week. Prerequisites: LASC234 and LASC235 or permission of department. Recommended: LASC403. Senior standing. For LASC majors only. Also offered as SPAN458. Capstone course for advanced students in the Latin American Studies Certificate Program or other students with appropriate preparation. Interdisciplinary topics will vary each semester.

LATN -- Latin

LATN 101 Elementary Latin I (4) Four hours of discussion/recitation per week. A student who has two units of Latin in high school may register for LATN101 for the purposes of review, but ordinarily not for credit.

LATN 102 Elementary Latin II (4) Four hours of discussion/recitation per week. Prerequisite: LATN101 at UMCP or permission of department.

LATN 120 Intensive Latin (4) Prerequisite: permission of department. Not open for credit to students with credit for LATN102. Elements of Latin grammar and vocabulary; elementary reading. The first year's study of Latin compressed into a single semester.

LATN 201 Intermediate Latin (4) Prerequisite: LATN102 at UMCP or permission of department. Formerly LATN203.

LATN 220 Intermediate Intensive Latin (4) Prerequisite: LATN102, or LATN120, or equivalent. Review of Latin grammar; reading in prose and poetry from selected authors.

LATN 301 Plautus (3) Plautine drama. Literary, linguistic and socio-cultural aspects.

LATN 302 Ovid (3) Major works of Ovidian poetry. Literary and moral atmosphere of Augustan age.

LATN 303 Petronius (3) Reading and analysis of Petronius' Satyricon with an emphasis on the literary climate of the Neronian Age and on the emergence of the novel as a literary genre.

LATN 304 Cicero and Sallust (3) Prerequisite: LATN201 or equivalent. Selected speeches of Cicero and selections from the historian Sallust. Rhetorical, social and political context. Readings will be in Latin.

LATN 351 Horace and Catullus (3) Prerequisite: LATN201 or equivalent.

LATN 386 Experiential Learning (3-6) Prerequisite: Learning Proposal approved by the Office of Experiential Learning Programs, faculty sponsor, and student's internship sponsor. Junior standing.

LATN 402 Tacitus (3)

LATN 403 Roman Satire (3)

LATN 405 Lucretius (3)

LATN 410 Latin Historians (3) Latin historical writing as a literary genre. Influences, style, and literary techniques.

LATN 415 Vergil's Aeneid (3) Formerly LATN305. Vergil's Aeneid: readings of selections in Latin and of the entire epic in English translation along with critical essays.

LATN 420 Cicero and Caesar (3) Reading and analysis of texts by M. Tullius Cicero and C. Iulius Caesar, with emphasis on the relationships between them and on the period of the Civil War.

LATN 424 Silver Age Latin (3) Reading and analysis of selected texts. Emphasis on the role of Nero and Seneca in literary developments.

LATN 472 Historical Development of the Latin Language (3) Credit will be granted for only one of the following: LATN472 or LING431. An analysis of the development of the Latin language from archaic times to the Middle Ages.

LATN 488 Latin Readings (3) Prerequisite: permission of department. Repeatable to 6 credits if content differs. The reading of one or more selected Latin authors from antiquity through the Renaissance. Reports.

LATN 499 Independent Study in Latin Language and Literature (1-3) Prerequisite: permission of department. Repeatable to 6 credits if content differs.

LBSC -- Library Science

LBSC 208 Special Topics in Information Studies (3) Repeatable to 6 credits if content differs. Special topics in aspects of information use, technology, and policy.

LBSC 386 Experiential Learning (3-6) Prerequisite: Learning Proposal approved by the Office of Experiential Learning Programs, faculty sponsor, and student's internship sponsor. Junior standing.

LBSC 488 Recent Trends and Issues in Library and Information Services (1-3) Repeatable to 9 credits. Discussions of recent trends and issues in library and information services. Designed for practicing professionals.

LBSC 499 Workshops, Clinics, and Institutes (1-9) Repeatable to 9 credits. Workshops, clinics, and institutes developed around specific topics or problems. Primarily for practicing librarians.

LGBT -- Lesbian Gay Bisexual Transgender Studies

LGBT 200 Introduction to Lesbian, Gay, Bisexual, and Transgender Studies (3) Not open to students who have completed WMST298E. Credit will be granted for only one of the following: LGBT200 or WMST298E. Formerly WMST298E. An interdisciplinary study of the historical and social contexts of personal, cultural and political aspects of LGBT life. Sources from a variety of fields, such as anthropology, history, psychology, sociology, and women's studies, focusing on writings by and about LGBT people.

LGBT 291 International Perspectives on Lesbian and Gay Studies (3) Also offered as CMLT291. Not open to students who have completed CMLT291. Credit will be granted for only one of the following: CMLT291 or LGBT291. Exploration of the construction and representation of sexualities in culture around the globe, with particular emphasis on literature and media.

LGBT 298 Special Topics in Lesbian, Gay, Bisexual, and Transgender Studies (3) Repeatable to 9 credits if content differs. Study of particular themes and issues in LGBT studies.

LGBT 327 Lesbian, Gay, Bisexual, and Transgender Studies Film and Video (3) Junior standing. Comparative analysis of forms, themes, and the politics of representation in film and video by and/or about LGBT people.

LGBT 350 Lesbian, Gay, Bisexual, and Transgender People and Communication (3) Two hours of lecture and two hours of laboratory per week. Prerequisite: LGBT200 (formerly: WMST298E) and permission of program. Study of differences, stereotypes, and values distinguishing LGBT people and of effective means of communicating such differences to non-LGBT people. Emphasis on contemporary LGBT life and on the development of didactic skills. Preparation and presentation of forums on LGBT people; facilitation of workshops in various outreach locations (residence halls, Greek system, classes).

LGBT 359 Special Topics in Lesbian, Gay, Bisexual, and Transgender Literatures (3) Prerequisite: two lower-level English courses, at least one in literature. Repeatable to 9 credits if content differs. Also offered as ENGL359. Study of selected writers or particular themes in Lesbian, Gay Bisexual, and Transgender literatures.

LGBT 386 Lesbian, Gay, Bisexual, and Transgender Community Organization (3-6) Internship Prerequisite: 9 credits in LGBT studies and permission of program. Supervised internship experience with a community organization that expressly serves lesbian, gay, bisexual, and transgender people. Students will be expected to relate course material to experience in an analysis of an organization's activities.

LGBT 407 Gay and Lesbian Philosophy (3) Also offered as PHIL407. Not open to students who have completed PHIL407. Credit will be granted for only one of the following: PHIL407 or LGBT407. An examination in historical and social context of personal, cultural, and political aspects of gay and lesbian life, paying particular attention to conceptual, ontological, epistemological, and social justice issues.

LGBT 448 Special Topics in Lesbian, Gay, Bisexual, and Transgender Studies (3) Prerequisite: LGBT200 or permission of program. Junior standing. Repeatable to 9 credits if content differs. In-depth study of particular themes and issues in LGBT studies.

LGBT 459 Selected Topics in Sexuality and Literature (3) Three hours of lecture per week. Prerequisite: two lower-level English courses, at least one in literature. Repeatable to 9 credits if content differs. Also offered as ENGL459. Detailed study of sexuality as an aspect of literary and cultural expression.

LGBT 465 Theories of Sexuality and Literature (3) Three hours of lecture per week. Prerequisite: two lower-level English courses, at least one in literature. Also offered as ENGL465. Not open to students who have completed ENGL465. Credit will be granted for only one of the following: ENGL465 or LGBT465. An in-depth study of the ways in which sexuality and sexual difference create or confound the conditions of meaning in the production of literary texts. Attention to psychoanalysis, history of sexuality, feminist theory, and other accounts of sexual identity.

LGBT 488 Seminar in Lesbian, Gay, Bisexual, and Transgender Studies (1-3) Prerequisites: 9 credits in LGBT Studies and permission of program. Recommended: LGBT200 and ENGL265 or CMLT291. Repeatable to 9 credits if content differs. Not open to students who have completed CMLT498Y. Formerly CMLT498Y. Developments in theories and methods of LGBT Studies, with emphasis upon interaction between the humanities and the social sciences in the elaboration of this interdisciplinary area of scholarship.

LGBT 494 Lesbian Communities and Differences (3) Prerequisite: One course in Women's Studies, preferably WMST200. Also offered as WMST494. Not open to students who have completed WMST494. Credit will be granted for only one of the following: WMST494 or LGBT494. The meanings of lesbian communities across many lines of difference. Using lesbian feminists of the 1970s as a starting point, we will look both back and forward in history, tracing changes and exploring the meanings of these in their social and historical contexts.

LGBT 499 Independent Study (1-3) Prerequisite: LGBT200 and permission of department. Senior standing. Repeatable to 6 credits if content differs. Directed research and analysis in LGBT Studies on a topic selected by the student.

LING -- Linguistics

LING 200 Introductory Linguistics (3) Does not count toward the Linguistics major and does not fulfill prerequisite requirements for all upper-level courses. Not open to students who have completed HESP120. Credit will be granted for only one of the following: HESP120 or LING200. An exploration of the nature of human language, designed for non-majors. Introduction to the basic concepts and methodology of modern linguistic analysis (sound systems, word formation, sentence structure). Additional topics may include: semantics, pragmatics, social aspects of language, dialects, language change, acquisition, writing systems, typology, language universals, comparison with other communication systems, etc.

LING 210 Structure of American Sign Language (3) Overview of phonology, morphology and syntax of American Sign Language. History of the language and the unique social, political and linguistic situation of the deaf.

LING 240 Language and Mind (3) Required for LING majors and recommended for students in related fields.. The study of language as a cognitive phenomenon. Focus on mastering the concepts and technical skills required for further courses in linguistics. Ways of representing people's knowledge of their native language, ways in which that knowledge is attained naturally by children, and how it is used in speaking and listening. Additional topics may include: animal communication, language and the brain, language and thought.

LING 311 Syntax I (3) Prerequisite: LING240. Basic concepts, analytical techniques of generative syntax, relation to empirical limits imposed by viewing grammars as representations of a component of human mind. Aspects of current theories.

LING 312 Syntax II (3) Prerequisite: LING311. Continuation of LING311. Development of theories of syntax. Criteria for revising theories. Methods and strategies of scientific efforts to explain natural phenomena.

LING 321 Phonology I (3) Prerequisite: LING240. Properties of sound systems of human languages, basic concepts and analytical techniques of generative phonology. Empirical limits imposed by viewing grammars as cognitive representations. Physiological properties and phonological systems; articulatory phonetics and distinctive feature theory.

LING 322 Phonology II (3) Prerequisite: LING321. Continuation of LING321. Further investigation of phonological phenomena and phonological theory. Revising and elaborating the theory of the phonological representation; interaction of phonology and morphology.

LING 330 Historical Linguistics (3) Prerequisite: LING200 or LING240. Recommended: LING321 and LING311. A traditional presentation of language change. Language types and families, sounds and writing systems, grammatical categories. Reconstruction of proto-languages by internal and comparative methods.

LING 350 Philosophy of Language (3) Prerequisite: PHIL170 or PHIL173 or PHIL371; or LING311. The nature and function of language and other forms of symbolism from a philosophical perspective.

LING 386 Experiential Learning (3-6) Prerequisite: Learning Proposal approved by the Office of Experiential Learning Programs, faculty sponsor, and student's internship sponsor. Junior standing.

LING 410 Grammar and Meaning (3) Prerequisite: LING 311 or permission of instructor. The basic notions of semantic theory: reference, quantification, scope relations, compositionality, thematic relations, tense and time, etc. The role these notions play in grammars of natural languages. Properties of logical form and relationship with syntax.

LING 411 Comparative Syntax (3) Prerequisite: LING312 permission of instructor. Comparison of data from a variety of languages with respect to syntactic theory in order to investigate how parameters of universal grammar are fixed differently in different languages. Attempts to work out fragments of grammars for some languages.

LING 419 Topics in Syntax (3) Prerequisite: LING311. Repeatable to 12 credits if content differs. Topics vary.

LING 420 Word Formation (3) Prerequisite: LING311 and LING321. Examination of shape and meaning of possible words, both across languages and within particular languages. Interaction between principles of word formation and other components of a grammar: syntax, logical form and phonology.

LING 429 Topics in Phonology (3) Prerequisite: LING322. Repeatable to 6 credits if content differs. Advanced seminar in phonology. Topics vary.

LING 430 Language Change (3) Prerequisite: LING240. Changes in grammars from generation to generation. Consequences for the theory of grammars. Traditional work on historical change.

LING 439 Topics in Diachronic Linguistics (3) Repeatable to 6 credits if content differs.

LING 440 Grammars and Cognition (3) Prerequisite: LING311 and LING321. Relationship between the structure, development and functioning of grammars and the structure, development and functioning of other mental systems. Interpretations of experimental and observational work on children's language, aphasia, speech production and comprehension.

LING 443 Programming for Linguistics (3) Prerequisite: permission of department. A one-semester introduction to computer programming, geared for linguists and others who are not computer scientists. Not intended for students who already have significant programming experience.

LING 444 Child Language Acquisition (3) Prerequisite: LING311. Examines language acquisition in infancy and early childhood: the nature of children's linguistic representations and how these develop naturally. Role of (possible) innate linguistic structure and interaction of such structure with experience. Evaluation of methods and results of current and classic research leading to contemporary models of language development.

LING 451 Grammars and Variation (3) Prerequisite: LING311. Grammars and the use of language in a variety of styles: formal, casual, literary, etc. Consequences for concepts of grammars. Variation theory. Literary styles.

LING 453 Mathematical Approaches to Language (3) Prerequisite: LING312. The aspects of mathematics used in linguistic discussions: recursion theory, Chomsky's hierarchy of grammars, set theory, Boolean algebra, finite state grammars, context-free grammars, etc. Applications to theories of grammars. Formalizations of grammatical theories.

LING 455 Second Language Acquisition (3) Prerequisite: LING311. Examines second language acquisition from the perspective of Chomsky's 'Universal Grammar'. Relationship between theories of grammars, first language acquisition by children and the learning of second languages by adults.

LING 460 Diversity and Unity in Human Languages (3) Prerequisite: LING200 or LING240. Fundamentals of grammatical typology as they relate to issues in social attitudes towards language. Linguistic structure of standard and non-standard languages and dialects. Relationship of different writing systems to linguistic structure. Issues in bilingualism and multilingualism.

LING 487 Computer Science for Cognitive Studies (3) Also offered as PHIL487. Credit will be granted for only one of the following: LING487 or PHIL487. List processing and discrete mathematics. Preparation for the study of artificial intelligence and other mathematically oriented branches of cognitive studies. Intended for students of linguistics, philosophy, and psychology. LISP computer language, graphs and trees, the concept of computational complexity, search algorithms.

LING 499 Directed Studies in Linguistics (1-3) Prerequisite: permission of department. Repeatable to 6 credits if content differs. Independent study or research on language under the supervision of a faculty member.

MATH -- Mathematics

MATH 003 Developmental Mathematics (3) Six hours of laboratory per week. Recommended: for students who plan to take MATH110, MATH111, MATH113, MATH115 or STAT100, but are not currently qualified to do so. MATH003 is a review of Intermediate High School Algebra intended for students preparing for one of the credit bearing Fundamental Studies Math Courses. It is taught in special computer labs using a self-paced computer program. The curriculum will be geared toward the student's level of algebra skills and eventual goals. There is a special fee for the course that may be applied in addition to the regular tuition charge. Students should refer to the schedule of classes for details on fees as they apply to a particular semester. The course does not carry any credit toward any degree at the University. The course is repeatable. Topics will be chosen from exponents, polynomials, linear equations, quadratic equations as well as polynomial, rational, exponential and logarithm functions and elementary probability or statistics, depending on the student.

MATH 010 Algebra for MATH 110 (3) Five hours of lecture per week. There is a special fee for this class in addition to the regular tuition charge. A review of Intermediate High School Algebra intended for students preparing for MATH110. It is taught 5 days per week for the first 5 weeks, then leads directly into a special section of MATH110, the same semester, which also meets 5 days per week. Continuation in MATH110 is conditional on the student passing the MATHEMATICS PLACEMENT EXAM at the appropriate level. Topics include linear equations, linear inequalities, operations on polynomials, factoring, solutions of quadratic equations, as well as exponential and logarithm functions. MATH010 does not carry any credit toward any degree at the University, nor is it graded. It leads to either MATH110 or MATH003, both of which are graded.

MATH 011 Algebra for MATH 111 (3) Five hours of lecture per week. There is a special fee for this class in addition to the regular tuition charge. A review of Intermediate High School Algebra intended for students preparing for MATH111. It is taught 5 days per week for the first 5 weeks, then leads directly into a special section of MATH111, the same semester, which also meets 5 days per week. Continuation in MATH 111 is conditional on the student passing the MATHEMATICS PLACEMENT EXAM at the appropriate level. Topics include exponents, polynomials, linear equations, quadratic equations, as well as polynomial, rational, exponential and logarithm functions, Venn diagrams, permutations and combinations. MATH011 does not carry any credit toward any degree at the University, nor is it graded. It leads directly to MATH111 (or MATH113 or MATH110), or MATH003, all of which are graded.

MATH 013 Algebra for MATH 113 (3) Five hours of lecture per week. There is a special fee for this class in addition to the regular tuition charge. A review of Intermediate High School Algebra intended for students preparing for MATH113. It is taught 5 days per week for the first 5 weeks, then leads directly into a special section of MATH113, the same semester, which also meets 5 days per week. Continuation in MATH113 is conditional on the student passing the MATHEMATICS PLACEMENT EXAM at the appropriate level. Topics include exponents, polynomials, linear equations, quadratic equations, as well as polynomial, rational, exponential and logarithm functions. MATH013 does not carry any credit toward any degree at the University, nor is it graded. It leads directly to MATH113 (or MATH110), or MATH003, all of which are graded.

MATH 015 Algebra for MATH 115 (3) Five hours of lecture per week. There is a special fee for this class in addition to the regular tuition charge. A review of Intermediate High School Algebra intended for students preparing for MATH115. It is taught 5 days per week for the first 5 weeks, then leads directly into a special section of MATH115, the same semester, which also meets 5 days per week. Continuation in MATH115 is conditional on the student passing the MATHEMATICS PLACEMENT EXAM at the appropriate level. Topics include exponents, polynomials, linear equations in one and two variables, quadratic equations, as well as polynomial, rational, exponential and logarithm functions. MATH015 does not carry any credit toward any degree at the University, nor is it graded. It leads directly to MATH115 (or MATH111 or MATH113 or MATH110), or MATH003, all of which are graded.

MATH 110 Elementary Mathematical Models (3) Prerequisite: permission of department based on satisfactory score on the MATHEMATICS PLACEMENT EXAM, or satisfactory completion of MATH003 with the appropriate eligibility. Not open to students majoring in mathematics, engineering, business, life sciences, and the physical sciences. Not open to students who have completed MATH 140, MATH 220, or any MATH or STAT course for which MATH 140 or MATH 220 is a prerequisite. Credit will be granted for only one of the following: MATH110, MATH112, or MATH113. Topics include simple and compound interest; recursion for computing balances; installment loans and amortization; approximating data by linear models; analysis of applications to real-world collections of data; probability; conditional probability; independence; expected value; graphing and analysis of systems of inequalities; linear programming and applications.

MATH 111 Introduction to Probability (3) Prerequisite: permission of department based on satisfactory score on the MATHEMATICS PLACEMENT EXAM, or satisfactory completion of MATH003 with the appropriate eligibility or MATH110. Not open to students majoring in mathematics, engineering or the physical sciences. Not open to students who have completed STAT100 or any MATH or STAT course with a prerequisite of MATH141. Credit will be granted for only one of the following: MATH111 or STAT100. Logic, Boolean algebra, counting, probability, random variables, expectation, applications of the normal probability distribution.

MATH 112 College Algebra with Applications and Trigonometry (3) Prerequisite: permission of department, based on math placement exam or MATH003 performance. Not open to students who have completed MATH140 or MATH220 or any course for which MATH140 or MATH220 is a prerequisite. Credit will be granted for only one of the following: (i) MATH112, or (ii) MATH113, or (iii) (MATH110 and MATH115). Graphs and applications of elementary functions, including polynomial, rational, exponential and logarithmic functions. Systems of equations. Triangle trigonometry. The course differs from MATH113 only in that it covers a substantial amount of trigonometry in place of material on matrices, linear programming, sequences and series. MATH112 is strongly recommended for students in Architecture, Landscape Architecture, Life Sciences, and those needing PHYS141.

MATH 113 College Algebra with Applications (3) Prerequisite: permission of department based on satisfactory score on the MATHEMATICS PLACEMENT EXAM, or satisfactory completion of MATH003 with the appropriate eligibility, or MATH110. Not open to students who have completed MATH140, MATH220, or any course for which MATH140 or MATH220 is a prerequisite. Credit will be granted for only one of the following: MATH112; or MATH113; or (MATH110 and MATH115). Preparation for MATH220. Graphs and applications of elementary functions including: polynomial, rational, exponential and logarithmic functions. Systems of linear equations and linear inequalities used to solve representative problems in linear programming. Matrices and matrix operations including inverse. Sequences.

MATH 115 Precalculus (3) Prerequisite: permission of department based on satisfactory score on the MATHEMATICS PLACEMENT EXAM, or satisfactory completion of MATH003 with the appropriate eligibility, or MATH113. Not open to students who have completed MATH140 or any MATH or STAT course for which MATH140 is a prerequisite. Credit will be granted for only one of the following: MATH113 or MATH115. Preparation for MATH220 or MATH140. Elementary functions and graphs: polynomials, rational functions, exponential and logarithmic functions, trigonometric functions. Algebraic techniques preparatory for calculus.

MATH 130 Calculus I for the Life Sciences (4) Three hours of lecture and two hours of discussion/recitation per week. Prerequisite: A grade of C or better in MATH 112, MATH113, or MATH115; or equivalent; or permission of department based on 3 1/2 years of college preparatory mathematics (including trigonometry) and satisfactory performance on the MATHEMATICS PLACEMENT EXAM. Restricted to students with majors in College of Chemical and Life Sciences. Not open to students majoring in mathematics, engineering or the physical sciences. Credit will be granted for only one of the following: MATH130, MATH140, or MATH220. Basic ideas of differential integral calculus, with emphasis on elementary techniques and applications to the life sciences.

MATH 131 Calculus II for Life Sciences (4) Prerequisite: A grade of C (2.0) or better in MATH130 or MATH140 or equivalent. Restricted to students with majors in College of Chemical & Life Sciences. Credit will be granted for only one of the following: MATH131, MATH141, or MATH221. Continuation of MATH130, including an introduction to autonomous differential equations, probability (including conditional probability and the normal and binomial distributions), and statistical reasoning (including confidence intervals). Alongside the mathematical concepts will be applications in biology.

MATH 140 Calculus I (4) Prerequisite: permission of department based on 3 1/2 years of college preparatory mathematics (including trigonometry) and a satisfactory score on the MATHEMATICS PLACEMENT EXAM, or MATH115 with a grade of C or better. Credit will be granted for only one of the following: MATH130, MATH140 or MATH220. Introduction to calculus, including functions, limits, continuity, derivatives and applications of the derivative, sketching of graphs of functions, definite and indefinite integrals, and calculation of area. The course is especially recommended for science, engineering and mathematics majors.

MATH 141 Calculus II (4) Prerequisite: A grade of C or better in MATH140 or equivalent; or a grade of B or better in MATH 130 and permission of an undergraduate advisor in the math department. Credit will be granted for only one of the following: MATH131, MATH141 or MATH221. Continuation of MATH140, including techniques of integration, improper integrals, applications of integration (such as volumes, work, arc length, moments), inverse functions, exponential and logarithmic functions, sequences and series.

MATH 199 Special Topics in Mathematics (3) Prerequisite: permission of department. Many games have a mathematical component. We will introduce several games, play them, and investigate the underlying mathematics. Students will work in teams on projects that involve developing strategies for new games.

MATH 212 Elements of Numbers and Operations (3) Prerequisite: One year of college preparatory algebra. Restricted to elementary, early childhood, and special education majors. Not open to students who have completed MATH210 with a grade of C- or better. Credit will be granted for only one of the following: MATH210 or MATH212. Topics from algebra and number theory designed to provide insight into arithmetic: sets, functions, number systems, number theory; operations with natural numbers, integers, rational numbers; linear equations.

MATH 213 Elements of Geometry and Measurement (3) Prerequisite: MATH212. Restricted to elementary and early childhood education majors. Not open to students who have completed MATH211 with a grade of C- or better. Credit will be granted for only one of the following: MATH211 or MATH213. Properties of geometric objects in two and three dimensions; parallel lines, curves and polygons; ratio, proportion, similarity; transformational geometry and measurement, constructions, justifications and proofs.

MATH 214 Elements of Probability and Statistics (3) Prerequisite: MATH212. Restricted to elementary and early childhood education majors. Not open to students who have completed MATH211 with a grade of C- or better. Credit will be granted for only one of the following: MATH211 or MATH214. Permutations and combinations; probability; collecting and representing data; using statistics to analyze and interpret data.

MATH 220 Elementary Calculus I (3) Prerequisite: permission of department based on 3 1/2 years of college preparatory mathematics (including trigonometry) and satisfactory performance on the MATHEMATICS PLACEMENT EXAM, or MATH112, or MATH113, or MATH115. Not open to students majoring in mathematics, engineering or the physical sciences. Credit will be granted for only one of the following: MATH130, MATH140 or MATH220. Basic ideas of differential and integral calculus, with emphasis on elementary techniques of differentiation and applications.

MATH 221 Elementary Calculus II (3) Prerequisite: MATH220, MATH 130 or MATH140, or equivalent. Not open to students majoring in mathematics, engineering or the physical sciences. Credit will be granted for only one of the following: MATH131, MATH141 or MATH221. Differential and integral calculus, with emphasis on elementary techniques of integration and applications.

MATH 240 Introduction to Linear Algebra (4) Prerequisite: MATH 131 with a grade of C or better, or MATH141 or equivalent. Credit will be granted for only one of the following: MATH240, MATH341, MATH400, or MATH461. Basic concepts of linear algebra: vector spaces, applications to line and plane geometry, linear equations and matrices, similar matrices, linear transformations, eigenvalues, determinants and quadratic forms.

MATH 241 Calculus III (4) Prerequisite: MATH141. Credit will be granted for only one of the following: MATH241 or MATH340. Introduction to multivariable calculus, including vectors and vector-valued functions, partial derivatives and applications of partial derivatives (such as tangent planes and Lagrange multipliers), multiple integrals, volume, surface area, and the classical theorems of Green, Stokes and Gauss.

MATH 246 Differential Equations for Scientists and Engineers (3) Prerequisite: MATH141; and any one of the following: MATH240 or ENES102 or PHYS161 or PHYS171. Credit will be granted for only one of the following: MATH246 or MATH341. An introduction to the basic methods of solving ordinary differential equations. Equations of first and second order, linear differential equations, Laplace transforms, numerical methods and the qualitative theory of differential equations.

MATH 274 History of Mathematics (3) Three hours of lecture per week. Prerequisite: MATH140 or MATH220. An overview of aspects in the history of mathematics from its beginning in the concrete problem solving of ancient times through the development of abstraction in the 19th and 20th centuries. The course considers both mathematical ideas and the context in which they developed in various civilizations around the world.

MATH 299 Selected Topics in Mathematics (1-3) Prerequisite: permission of department. Topics of special interest under the general guidance of the departmental committee on undergraduate studies.

MATH 310 Introduction to Analysis (3) Prerequisite: MATH141. Corequisite: MATH241. Math majors may not use this course to satisfy an upper-level requirement. For MATH majors only. To prepare students for MATH410 Advanced Calculus. To develop the students' ability to construct a rigorous proof of a mathematical claim. Students will also be made aware of mathematical results that are of interest to those wishing to analyze a particular mathematical model. Topics will be drawn from logic, set theory, structure of the number line, elementary topology, metric spaces, functions, sequences and continuity.

MATH 340 Multivariable Calculus, Linear Algebra and Differential Equations (4) I (Honors) Prerequisite: MATH140; MATH141; and permission of department. Credit will be granted for only one of the following: MATH241 or MATH340. First semester of the MATH340-341 sequence which gives a unified and enriched treatment of multivariable calculus, linear algebra and ordinary differential equations, with supplementary material from subjects such as differential geometry, Fourier series and calculus of variations. Students completing MATH340-341 will have covered the material of MATH240, MATH241, and MATH246, and may not also receive credit for MATH240, MATH241 or MATH246.

MATH 341 Multivariable Calculus, Linear Algebra, Differential Equations (4) II (Honors) Prerequisite: MATH340. A student receiving credit for MATH341 cannot receive credit for MATH240, MATH246, MATH400, or MATH461. A continuation of MATH340.

MATH 386 Experiential Learning (3-6) Prerequisite: Learning Proposal approved by the Office of Experiential Learning Programs, faculty sponsor and student's internship sponsor. Junior standing.

MATH 400 Vectors and Matrices (3) Prerequisite: MATH221 or equivalent. Not open to students in the CMPS or Engineering Colleges. Credit will be granted for only one of the following: MATH240, MATH341, MATH400, or MATH461. The essentials of matrix theory needed in the management, social and biological sciences. Main topics: systems of linear equations, linear independence, rank, orthogonal transformations, eigenvalues, the principal axes theorem. Typical applications: linear models in economics and in statistics, Markov chains, age-specific population growth.

MATH 401 Applications of Linear Algebra (3) Prerequisite: MATH240 or MATH461. Various applications of linear algebra: theory of finite games, linear programming, matrix methods as applied to finite Markov chains, random walk, incidence matrices, graphs and directed graphs, networks and transportation problems.

MATH 402 Algebraic Structures (3) Prerequisite: MATH240 or equivalent. Not open to mathematics graduate students. Credit will be granted for only one of the following: MATH402 or MATH403. For students having only limited experience with rigorous mathematical proofs. Parallels MATH403. Students planning graduate work in mathematics should take MATH403. Groups, rings, integral domains and fields, detailed study of several groups; properties of integers and polynomials. Emphasis is on the origin of the mathematical ideas studied and the logical structure of the subject.

MATH 403 Introduction to Abstract Algebra (3) Prerequisite: MATH240 and MATH241; or equivalent. Credit will be granted for only one of the following: MATH402 or MATH403. Integers; groups, rings, integral domains, fields.

MATH 404 Field Theory (3) Prerequisite: MATH403. Algebraic and transcendental elements, Galois theory, constructions with straight-edge and compass, solutions of equations of low degrees, insolubility of the quintic equation, Sylow theorems, fundamental theorem of finite Abelian groups.

MATH 405 Linear Algebra (3) Prerequisite: MATH240 or MATH461. An abstract treatment of finite dimensional vector spaces. Linear transformations and their invariants.

MATH 406 Introduction to Number Theory (3) Prerequisite: MATH141 or permission of department. Integers, divisibility, prime numbers, unique factorization, congruences, quadratic reciprocity, Diophantine equations and arithmetic functions.

MATH 410 Advanced Calculus I (3) Prerequisites: MATH240 and MATH241, with grade of C or better; and permission of department. First semester of a year course. Subjects covered during the year are: sequences and series of numbers, continuity and differentiability of real valued functions of one variable, the Riemann integral, sequences of functions and power series. Functions of several variables including partial derivatives, multiple integrals, line and surface integrals. The implicit function theorem.

MATH 411 Advanced Calculus II (3) Prerequisite: MATH410 and permission of department. Credit will be granted for only one of the following: MATH411 or MATH412. Continuation of MATH410.

MATH 412 Advanced Calculus with Applications (3) Prerequisite: MATH410 and permission of department. Credit will be granted for only one of the following: MATH411 or MATH412. Analysis in several variables, and applications, from a computational perspective.

MATH 414 Differential Equations (3) Prerequisites: MATH410 and MATH240; or equivalent. Existence and uniqueness theorems for initial value problems. Linear theory: fundamental matrix solutions, variation of constants formula, Floquet theory for periodic linear systems. Asymptotic orbital and Lyapunov stability with phase plane diagrams. Boundary value theory and series solutions.

MATH 416 Applied Harmonic Analysis: An Introduction to Signal Processing (3) Prerequisite: MATH141 and MATH240; or permission of department. Familiarity with MATLAB is also required. Introduces students to the mathematical concepts arising in signal analysis from the applied harmonic analysis point of view. Topics include applied linear algebra, Fourier series, discrete Fourier transform, Fourier transform, Shannon Sampling Theorem, wavelet bases, multiresolution analysis, and discrete wavelet transform.

MATH 420 Mathematical Modeling (3) Prerequisite: MATH241, MATH246, STAT400, MATH240 or MATH461; and permission of department. Also offered as AMSC420. Credit will be granted for only one of the following: AMSC420, MAPL420, or MATH420. The course will develop skills in mathematical modeling through practical experience. Students will work in groups on specific projects involving real-life problems that are accessible to their existing mathematical backgrounds. In addition to the development of mathematical models, emphasis will be placed on the use of computational methods to investigate these models, and effective oral and written presentation of the results.

MATH 424 Introduction to the Mathematics of Finance (3) Prerequisites: MATH141; and either STAT400 or BMGT231 and permission of department. Recommended: MATH240, MATH241, or MATH246. Credit will be granted for only one of the following: BMGT444, MATH424 or MATH498F. Formerly MATH498F. Introduction to the mathematical models used in finance and economics with emphasis on pricing derivative instruments. Designed for students in mathematics, computer science, engineering, finance and physics. Financial markets and instruments; elements from basic probability theory; interest rates and present value analysis; normal distribution of stock returns; option pricing; arbitrage pricing theory; the multiperiod binomial model; the Black-Scholes option pricing formula; proof of the Black-Scholes option pricing formula and applications; trading and hedging of options; Delta hedging; utility functions and portfolio theory; elementary stochastic calculus; Ito's Lemma; the Black-Scholes equation and its conversion to the heat equation.

MATH 430 Euclidean and Non-Euclidean Geometries (3) Prerequisite: MATH141. Hilbert's axioms for Euclidean geometry. Neutral geometry: the consistency of the hyperbolic parallel postulate and the inconsistency of the elliptic parallel postulate with neutral geometry. Models of hyerbolic geometry. Existence and properties of isometries.

MATH 431 Geometry for Computer Graphics (3) Prerequisite: MATH240 or MATH461. Topics from projective geometry and transformation geometry, emphasizing the two-dimensional representation of three-dimensional objects and objects moving about in the plane and space. The emphasis will be on formulas and algorithms of immediate use in computer graphics.

MATH 432 Introduction to Topology (3) Prerequisite: MATH410 or equivalent. Metric spaces, topological spaces, connectedness, compactness (including Heine-Borel and Bolzano-Weierstrass theorems), Cantor sets, continuous maps and homeomorphisms, fundamental group (homotopy, covering spaces, the fundamental theorem of algebra, Brouwer fixed point theorem), surfaces (e.g., Euler characteristic, the index of a vector field, hairy sphere theorem), elements of combinatorial topology (graphs and trees, planarity, coloring problems).

MATH 436 Differential Geometry of Curves and Surfaces I (3) Prerequisites: MATH241; and either MATH240 or MATH461; and two 400-level MATH courses (not including MATH400, 461 and 478). Curves in the plane and Euclidean space, moving frames, surfaces in Euclidean space, orientability of surfaces; Gaussian and mean curvatures; surfaces of revolution, ruled surfaces, minimal surfaces, special curves on surfaces, "Theorema Egregium"; the intrinsic geometry of surfaces.

MATH 437 Differential Forms (3) Prerequisite: MATH241; and either MATH240 or MATH461. Recommended: One of the following - MATH403, MATH405, MATH410, MATH432, or MATH436. Introduction to differential forms and their applications, and unites the fundamental theorems of multivariable calculus in a general Stokes Theorem that is valid in great generality. It develops this theory and technique to perform calculations in analysis and geometry. Topics include an introduction to topological spaces, the Gauss-Bonnet Theorem, Gauss's formula for the linking number, and the Cauchy Integral Theorem. Applications include Maxwell's equations of electromagnetism, connections and guage theory, and symplectic geometry and Hamiltonian dynamics.

MATH 445 Elementary Mathematical Logic (3) Prerequisite: MATH141. Credit will be granted for only one of the following: MATH445 or MATH450/CMSC450. Elementary development of propositional and predicate logic, including semantics and deductive systems and with a discussion of completeness, incompleteness and the decision problem.

MATH 446 Axiomatic Set Theory (3) Prerequisite: MATH403 or MATH410. Development of a system of axiomatic set theory, choice principles, induction principles, ordinal arithmetic including discussion of cancellation laws, divisibility, canonical expansions, cardinal arithmetic including connections with the axiom of choice, Hartog's theorem, Konig's theorem, properties of regular, singular and inaccessible cardinals.

MATH 452 Introduction to Dynamics and Chaos (3) Prerequisite: MATH240 and MATH246. Also offered as AMSC452. Credit will be granted for only one of the following: AMSC452, MAPL452 or MATH452. An introduction to mathematical dynamics and chaos. Orbits, bifurcations, Cantor sets and horseshoes, symbolic dynamics, fractal dimension, notions of stability, flows and chaos. Includes motivation and historical perspectives, as well as examples of fundamental maps studied in dynamics and applications of dynamics.

MATH 456 Cryptology (3) Prerequisites: Any two 400-level MATH courses; or CMSC330 and CMSC351 and permission of department. Also offered as CMSC456. Credit will be granted for only one of the following: MATH456 or CMSC456. Importance in protecting data in communications between computers. The subject lies on the border between mathematics and computer science. Mathematical topics include number theory and probability. Computer science topics include complexity theory.

MATH 461 Linear Algebra for Scientists and Engineers (3) Prerequisites: MATH141 and one MATH/STAT course for which MATH141 is a prerequisite. This course cannot be used toward the upper level math requirements for MATH/STAT majors. Credit will be granted for only one of the following: MATH240, MATH341, MATH400 or MATH461. Basic concepts of linear algebra. This course is similar to MATH 240, but with more extensive coverage of the topics needed in applied linear algebra: change of basis, complex eigenvalues, diagonalization, the Jordan canonical form.

MATH 462 Partial Differential Equations for Scientists and Engineers (3) Prerequisites: MATH241 and MATH246. Linear spaces and operators, orthogonality, Sturm-Liouville problems and eigenfunction expansions for ordinary differential equations. Introduction to partial differential equations, including the heat equation, wave equation and Laplace's equation. Boundary value problems, initial value problems and initial-boundary value problems.

MATH 463 Complex Variables for Scientists and Engineers (3) Prerequisite: MATH241 or equivalent. The algebra of complex numbers, analytic functions, mapping properties of the elementary functions. Cauchy integral formula. Theory of residues and application to evaluation of integrals. Conformal mapping.

MATH 464 Transform Methods for Scientists and Engineers (3) Prerequisite: MATH246. Fourier series, Fourier and Laplace transforms. Evaluation of the complex inversion integral by the theory of residues. Applications to ordinary and partial differential equations of mathematical physics: solutions using transforms and separation of variables. Additional topics such as Bessel functions and calculus of variations.

MATH 470 Mathematics for Secondary Education (3) Prerequisite: MATH140, MATH141, and one 400-level Math course. Not open to students who have completed MATH498E. Credit will be granted for only one of the following: MATH470 or MATH498E. Formerly MATH498E. An advanced perspective on some of the core mathematics underlying high school mathematics courses. Topics include number systems, functions of one variable, equations, inequalities, trigonometric functions, curve fitting, and polynomials. The course includes an analysis of alternate approaches to mathematical ideas and problems, and makes connections between ideas that may have been studied separately in different high school and college courses.

MATH 475 Combinatorics and Graph Theory (3) Prerequisites: MATH240 and MATH241; and permission of department. Also offered as CMSC475. Credit will be granted for only one of the following: MATH475 or CMSC475. General enumeration methods, difference equations, generating functions. Elements of graph theory, matrix representations of graphs, applications of graph theory to transport networks, matching theory and graphical algorithms.

MATH 478 Selected Topics For Teachers of Mathematics (1-3) Prerequisite: one year of college mathematics or permission of department. This course cannot be used toward the upper level math requirements for MATH/STAT majors.

MATH 480 Algebra for Middle School Teachers (3) Restricted to middle school teachers. This course cannot be used toward the upper level math requirement for MATH and STAT majors. Prerequisite: MATH214 or equivalent. Not open to students who have completed MATH498C. Credit will be granted for only one of the following: MATH480, MATH483, or MATH498C. Formerly MATH498C. Prepares teachers with elementary certification to teach Algebra 1 in middle school. Focuses on basic algebra concepts and related theoretical ideas.

MATH 481 Statistics and Data Analysis for Middle School Teachers (3) Prerequisite: MATH214 or equivalent. Course for middle school teachers. This course cannot be used toward the upper level math requirements for MATH/STAT majors. Not open to students who have completed MATH498B. Credit will be granted for only one of the following: MATH481, MATH498B, or MATH485. Formerly MATH498B. Prepares teachers with elementary certification to teach simple data analysis and probability in middle school. Focuses on understanding basic statistics, data analysis, and related theoretical ideas.

MATH 482 Geometry for Middle School Teachers (3) Prerequisite: MATH214 or equivalent. Course for middle school teachers. This course cannot be used toward the upper level math requirements for MATH/STAT majors. Senior standing. Not open to students who have completed MATH498E. Credit will be granted for only one of the following: MATH482, MATH484, or MATH498E. Prepares teachers with elementary certification to teach geometry in middle school. Focuses on understanding basic geometry concepts and related theoretical ideas.

MATH 483 Algebra for School Teachers (3) Prerequisite: MATH141 or equivalent. Cannot be used toward the upper level math requirements for MATH/STAT majors. Senior standing. Not open to students who have completed MATH498C. Credit will be granted for only one of the following: MATH498C, MATH483, or MATH480. Formerly MATH498C. Focuses on concepts related to algebra and trigonometry, including functions, equations, inequalities, and data analysis. Assumes a good understanding of calculus.

MATH 484 Geometry for High School Teachers (3) Prerequisite: MATH141 or equivalent. Cannot be used toward the upper level math requirement for MATH/STAT majors. Senior standing. Not open to students who have completed MATH498E. Credit will be granted for only one of the following: MATH482, MATH484, or MATH498E. Formerly MATH498E. Focuses on concepts related to geometry, including several geometry axiom schemes, transformations, and similarity. Includes constructions with Geometer's Sketchpad.

MATH 485 Statistics for High School Teachers (3) Prerequisite: MATH141 or equivalent. Cannot be used toward the upper level math requirements for MATH/STAT majors. Not open to students who have completed MATH498S.

Credit will be granted for only one of the following: MATH481, MATH485, or MATH498S. Formerly MATH498S. Focuses on concepts related to statistics and data analysis, including probability, sampling, distribution of data, and inference.

MATH 486 Calculus for High School Teachers (3) Prerequisite: MATH141 or equivalent. Cannot be used toward the upper level math requirements for MATH/STAT majors. Focuses on concepts related to one-variable calculus including limits, continuity, derivative, integrals, series, and applications of these topics.

MATH 489 Research Interactions in Mathematics (1-3) Prerequisite: permission of department. Repeatable to 10 credits if content differs. Students participate in a vertically integrated (undergraduate, graduate and/or postdoctoral, faculty) mathematics research group. Format varies. Students and supervising faculty will agree to a contract which must be approved by the department. Up to three credits of MATH489 may be applied to the mathematics degree requirements. See the department's MATH489 online syllabus for further information.

MATH 498 Selected Topics in Mathematics (1-9) Honors students register for reading courses under this number. Repeatable to 9 credits if content differs. Topics of special interest to advanced undergraduate students will be offered occasionally under the general guidance of the departmental committee on undergraduate studies.

MATH 499 Honors Seminar (2) Prerequisite: permission of department. Not open to graduate students. Formerly MATH398. Faculty supervised reports by students on mathematical literature. Both oral and written presentation on special topics of current interest.

MEES -- Marine-Estuarine-Environmental Sciences

MEES 498 Topics in Marine-Estuarine-Environmental Sciences (1-4) Lecture and/or laboratory series organized to study a selected area of marine-estuarine-environmental sciences not otherwise considered in formal courses.

MUED -- Music Education

MUED 155 Fundamentals for the Classroom Teacher (3) Open to students majoring in pre-early childhood education, pre-elementary education, elementary education or childhood education. The fundamentals of music theory and practice, related to the needs of the classroom and the kindergarten teacher.

MUED 186 Pre-professional Experiences I (2) For MUED majors only. Not open to students who have completed MUED197. Credit will be granted for only one of the following: MUED197 or MUED186. Formerly MUED197. An orientation into the role of the music teacher in the school and community. On-site school visits at elementary, middle and high school levels form the basis for discussion and exploration of all facets of the music education profession. Fulfills the College of Arts and Humanities requirement for UNIV101.

MUED 187 Pre-Professional Experiences II (1) Prerequisite: MUED186. For MUED majors only. Regular on-site school visitation at elementary, middle and high school levels arranged to expand student understandings and reflections of music instruction in classroom settings.

MUED 213 String Technique and Pedagogy I (2) Open only to majors in music education. For MUED majors only. Not open to students who have completed MUED113. Credit will be granted for only one of the following: MUED113 or MUED213. Formerly MUED113. A study of violin, viola, cello and bass technique and pedagogy; beginning level. Emphasizes group process playing and teaching.

MUED 214 String Technique and Pedagogy II (2) Prerequisite: MUED213; open only to majors in Music Education (instrumental option). Not open to students who have completed MUED114. Credit will be granted for only one of the following: MUED114 or MUED214. Formerly MUED114. A study in violin, viola, cello and bass technique and pedagogy; intermediate to advanced level. Emphasizes group process playing and teaching, chamber music and individual technique development.

MUED 215 Woodwind Technique and Pedagogy (2) Prerequisite: permission of department. Formerly: MUED116 and MUED117. Not open to students who have completed MUED116 and MUED117. Credit will be granted for only one of the following: MUED116, MUED117 or MUED215. Playing experience on instruments of the woodwind family. Historical and acoustical background. Principles of improvisation. Basic concepts of teaching. Methods and materials. Techniques of individual and class instruction.

MUED 216 Percussion Technique and Pedagogy (2) For MUED majors only. Playing experience on percussion instruments. Historical and acoustical background. Scoring for percussion. Principles of improvisation. Basic concepts of teaching. Methods and materials. Techniques of individual and class instruction.

MUED 217 Brass Instrument Technique and Pedagogy (2) For MUED majors only. Playing experience on instruments of the brass family. Historical and acoustical background. Principles of improvisation. Basic concepts of teaching. Methods and materials. Techniques of individual and class instruction.

MUED 222 Classroom Instruments Technique and Pedagogy (2) Prerequisite: MUED186 and MUED187. For MUED majors only. An introduction to the fundamentals of classroom instruments technique and pedagogy for the choral and general teacher.

MUED 311 Foundations of Elementary Instrumental Instruction (2) For MUED majors only. Prepare instrumental-emphasis music education majors to synthesize the knowledge and skills that will enable them to teach fundamental musical skills at the elementary level.

MUED 320 Foundations of Secondary Instrumental Instruction (2) Prerequisite: MUED311. For MUED majors only. Prepare instrumental-emphasis music education majors to synthesize the knowledge and skills that will enable them to extend secondary-level musical skill through planned instruction and development of teaching materials.

MUED 333 Classroom Vocal Pedagogy (2) Prerequisites: MUED186 and MUED187. For MUED majors only. An introduction to the fundamentals of group vocal pedagogy for the choral and general classroom teacher, including the teaching of posture, breathing, resonance, registration, articulation and foreign language diction as appropriate to needs of the child or adolescent singer in K-12 classroom settings.

MUED 386 Experiential Learning (3-6) Prerequisite: Learning Proposal approved by the Office of Experiential Learning Programs, faculty sponsor and student's internship sponsor. Junior standing.

MUED 410 Instrumental Arranging (2) Prerequisites: MUSC250 and permission of department. Arranging for school bands and orchestras from the elementary through high school levels.

MUED 411 Advanced Methods in Elementary Instrumental Music Instruction (2) Prerequisites: MUED311 and MUED320. Corequisite: MUED489. For MUED majors only. Prepare instrumental-emphasis music education majors to synthesize the knowledge and skills that will enable them to develop and/or maintain an exemplary curricular-oriented, research-based, comprehensive elementary instrumental music program.

MUED 420 Advanced Methods in Secondary Instrumental Music Instruction (2) Prerequisites: MUED311 and MUED320. Corequisite: MUED489. For MUED majors only. Prepare instrumental-emphasis music education majors to synthesize the knowledge and skills that will enable them to develop and/or maintain an exemplary, curricular-oriented, research-based, comprehensive secondary instrumental program.

MUED 471 Elementary General Music Methods (2) Prerequisites: MUED222 and MUED333. Corequisite: MUED489. For MUED majors only. A study of music curriculum, materials and teaching techniques for the development of sequential experiences which contribute to children's musical growth in the elementary schools.

MUED 472 Choral Methods (2) Prerequisite: MUED471. Corequisite: MUED489. For MUED majors only. Preparation for teaching choral classes through the integration of conducting technique, vocal pedagogy, knowledge of repertoire, and the application of appropriate instructional strategies in the context of peer teaching and field experience assignments.

MUED 473 Secondary General Music Methods (2) For MUED majors only. Introduction to current trends, materials and approaches in secondary general music instruction.

MUED 474 Field Experiences: Pre-Student Teaching (1) Prerequisite: MUED411 and MUED420; or MUED471 and MUED472; and permission of department. Senior standing. Field experiences to fulfill teaching requirements in K-12 music teacher education program.

MUED 484 Student Teaching in Elementary School: Music (4-6) Prerequisites: Admission to teacher education program and permission of department. Corequisite: MUED494. For MUED majors only. Fulfills elementary teaching requirements in K-12 music teacher education program. Limited to music education majors who have previously applied.

MUED 489 Field Experiences (1) Prerequisite: permission of department. Restricted to music education majors only. Repeatable to 6 credits. Series of field experiences in K-12 settings.

MUED 494 Student Teaching in Secondary School: Music (4-6) Prerequisite: admission to teacher education program and permission of department. Corequisite: MUED484. For MUED majors only. Fulfill secondary teaching requirements in K-12 music teacher education program. Limited to music education majors who have previously applied.

MUED 499 Workshops, Clinics, Institutes (1-3) Repeatable to 6 credits if content differs. Innovative and experimental dimensions of music education offered to meet the needs of music teachers and music supervisors allowing students to individualize their programs.

MUET -- Ethnomusicology

MUET 200 World Popular Musics and Identity (3) Two hours of lecture and one hour of discussion/recitation per week. Perspectives of world popular music as contested terrain, in terms of gender, nationality and aesthetics. Students will read case histories of specific movements, social commentaries on genres such as reggae, celtic-pop and rap, and investigate issues such as accessibility and technological constraints. The unifying factors are cross-cultural perceptions and displays of national identity, cultural retentions, stability and change.

MUET 210 The Impact of Music on Life (3) Two hours of lecture and one hour of discussion/recitation per week. Music as a part of culture. Materials drawn from traditions throughout the globe to illustrate issues of historical and contemporary significance, including the impact of race, class and gender on the study of music.

MUET 220 Selected Musical Cultures of the World (3) A survey of selected musical cultures of the world, such as India, Japan, China, Indonesia, West Africa, Eastern Europe and the Near East.

MUET 420 Introduction to Ethnomusicology (3) Prerequisite: MUET210, MUSC130, or permission of instructor. Junior standing. Study of principal concepts and methods in ethnomusicology, covering history of field, linguistics and anthropology, music in various settings, musical cognition and ethnography of performance.

MUET 430 The American Musical Experience: North America (3) Prerequisite: MUET210 or MUSC130. Junior standing. Many musical styles found in North America portray the ideas and beliefs that characterize our diverse society. Specific problems and issues in American society examined through the American musical experience.

MUET 432 Music in World Culture I (3) Prerequisite: MUSC130 or permission of department. Junior standing. Musics of the Pacific and Asia analyzed in terms of musical, social and aesthetic interrelationships.

MUET 433 Music in World Cultures II (3) Prerequisite: MUSC130 or permission of department. Junior standing. Musics of Europe, Africa, and the Americas analyzed in terms of musical, social and aesthetic interrelationships.

MUET 438 Area Studies in Ethnomusicology (3) Prerequisite: MUET432 or MUET433 or equivalent. Repeatable to 9 credits if content differs. Advanced study of musics in selected parts of the world.

MUSC -- School of Music

MUSC 099 Performance Attendance () Performance attendance laboratory for undergraduate music majors.

MUSC 100 Beginning Class Voice (2) Four hours of laboratory per week. A laboratory course involving a variety of voices and vocal problems. Principles of correct breathing as applied to singing; fundamentals of tone production and diction. Repertoire of folk songs and songs of the Classical and Romantic periods. Development of students' voices.

MUSC 102 Class Piano (2) Four hours of laboratory per week. Functional piano training for beginners. Development of techniques for school and community playing. Basic piano techniques; chord, arpeggio and scale techniques; melody and song playing; simple accompaniments, improvisation for accompaniments and rhythms; sight reading and transposition and playing by ear.

MUSC 103 Beginning Class Piano II (2) Four hours of laboratory per week. Prerequisite: MUSC102 or permission of department. Functional piano training for beginners. Development of techniques useful for school and community playing. Basic piano techniques; chord, arpeggio, and scale techniques; melody and song playing; simple accompaniments, improvisation for accompaniments and rhythms; sight reading and transposition, and playing by ear. MUSC 103 is a continuation of MUSC 102; elementary repertoire is begun.

MUSC 106 Beginning Classical Guitar (2) Two hours of lecture and five hours of laboratory per week. Introduction to classical guitar notation, technique, literature and performance. No previous musical experience required.

MUSC 123 Movement for Singers (1) Prerequisite: permission of department. Systematic exercises, improvisations and dances in conjunction with artistic vocal expression. Performance and critique of stage deportment, gestures and recital techniques.

MUSC 126 Vocal Diction: English and Latin (1) Two hours of laboratory per week. Prerequisite: permission of department. Augmentation of private voice study. Phonetics and diction for singers of English and Latin vocal literature.

MUSC 127 Vocal Diction: Italian and Spanish (1) Prerequisite: permission of department. For MUSC majors only. Augmentation of private voice study. Phonetics and diction for singers of Italian and Spanish vocal literature.

MUSC 128 Sight Reading For Pianists (2) Repeatable to 4 credits. A course to give the piano major an opportunity to develop proficiency in sight reading at the keyboard.

MUSC 129 Ensemble (1) Three hours of laboratory per week. Rehearsal and performance of selected works for small ensembles of instruments, piano, or small vocal groups. After two registrations in MUSC129, the student will elect MUSC229 for two additional semesters and MUSC329 thereafter.

MUSC 130 Survey of Music Literature (3) Three hours of lecture and one hour of laboratory per week. Open to all students except music and music education majors. A study of the principles upon which music is based, and an introduction to the musical repertory performed in America today.

MUSC 140 Music Fundamentals I (3) Limited to non-music majors. Introductory theory course. Notation, scales, intervals, triads, rhythm, form and basic aural skills.

MUSC 150 Theory of Music I (3) Prerequisite: departmental audition and entrance examination. For MUSC majors only. A study of basic concepts and skills in tonal melody and harmony through analysis and composition.

MUSC 151 Theory of Music II (3) Prerequisite: a grade of C or better in MUSC150. A continuation of MUSC150, including study of more advanced harmonic techniques of the eighteenth century, such as modulation and chromatic harmonies. Emphasis on sight singing, ear training, analysis and compositional skills.

MUSC 155 Fundamentals for the Classroom Teacher (3) Open to students majoring in pre-early childhood education, pre-elementary education, elementary education, or childhood education; other students take MUSC150. Credit will be granted for only one of the following: MUSC150 or MUSC155. The fundamentals of music theory and practice, related to the needs of the classroom and kindergarten teacher, and organized in accordance with the six-area concept of musical learning.

MUSC 200 Intermediate Class Voice I (2) Four hours of laboratory per week. Prerequisite: MUSC100 or equivalent vocal training. Continuation of MUSC100, with more advanced repertory for solo voice and small ensembles. A special section for music education majors will include the study of methods and materials for teaching class voice.

MUSC 202 Intermediate Class Piano I (2) Four hours of laboratory per week. Prerequisite: MUSC103 or equivalent piano training. Advanced keyboard techniques. Continuation of skills introduced in MUSC103. Transposition, modulation and sight reading; methods of teaching functional piano.

MUSC 203 Intermediate Class Piano II (2) Four hours of laboratory per week. Prerequisite: MUSC202 or equivalent piano training. Advanced keyboard techniques. Continuation of skills introduced in MUSC202. Transposition, modulation and sight reading; methods of teaching functional piano. Development of style in playing accompaniments and in playing for community singing. More advanced repertory.

MUSC 205 History of Popular Music, 1950-Present (3) Two hours of lecture and one hour of discussion/recitation per week. A historical survey of rock music (blues, rock, soul, metal, rap, etc.) from circa 1950 to the present, with emphasis on popular music as music and popular music as social history.

MUSC 226 Vocal Diction: French (1) Prerequisite: permission of department. For MUSC majors only. Augmentation of private voice study. Phonetics and diction for singers of French vocal literature.

MUSC 227 Vocal Diction: German (1) Prerequisite: permission of department. For MUSC majors only. Augmentation of private study. Phonetics and diction for singers of German vocal literature.

MUSC 228 Introduction to Accompanying for Pianists (2) Prerequisite: permission of department. For MUSC majors only. Repeatable to 10 credits. A course to introduce the piano major to accompanying at an intermediate level of difficulty. Class instruction will center on rehearsal and coaching geared toward performance, and will be supplemented by experience working as an accompanist in voice classes or applied studios.

MUSC 229 Ensemble (1) Three hours of laboratory per week. Rehearsal and performance of selected works for small ensembles of instruments, piano, or small vocal groups. After two registrations in MUSC129, the student will elect MUSC229 for two additional semesters and MUSC329 thereafter.

MUSC 230 History of Music I (3) Prerequisite: MUSC250 or equivalent; and permission of department. A historical study of western music from Corelli through Beethoven.

MUSC 248 Selected Topics in Music (1-3) Prerequisite: permission of School of Music. A maximum of three credits may be applied to music major requirements. Repeatable to 6 credits if content differs. Designed to allow a student of theory or music history to pursue a specialized topic or project under the supervision of a faculty member.

MUSC 250 Advanced Theory of Music I (4) Prerequisite: MUSC151 with a minimum grade of C. A continuation of MUSC 151, with further study of chromatic and modulatory techniques of the nineteenth century. Emphasis on sight singing, ear training, analysis and compositional skills.

MUSC 251 Advanced Theory of Music II (4) Prerequisite: a grade of C or better in MUSC250. A continuation of MUSC250, concentrating on late nineteenth-century chromatic harmony and an introduction to twentieth-century melody and harmony. Emphasis on sight singing, ear training, analysis and compositional skills.

MUSC 328 Introduction to Chamber Music for Pianists (2) Two hours of lecture and two hours of laboratory per week. Prerequisite: permission of department. Repeatable to 10 credits. A course to introduce the piano major to chamber music at a moderately difficult level. Class instruction will center on actual rehearsal and coaching geared toward performance, and will be supplemented by further experience in applied instrumental studios.

MUSC 329 Ensemble (1) Three hours of laboratory per week. Rehearsal and performance of selected works for small ensembles of instruments, piano, or small vocal groups. After two registrations in MUSC129, the student will elect MUSC229 for two additional semesters and MUSC329 thereafter.

MUSC 330 History of Music II (3) Prerequisite: MUSC250 or equivalent; and permission of department. A historical study of western music from the Romantic era to the present.

MUSC 331 History of Music III (3) Prerequisite: MUSC230, MUSC330, and permission of department. A historical study of western music from Antiquity through the Baroque, ending with a review of all periods of music history.

MUSC 339 Honors in Music (3) Prerequisite: permission of department. Corequisite: MUSC349. Repeatable to 6 credits. The production of one or more recitals or lecture-recitals; one or more compositions; or one or more honors theses in addition to regular degree requirements. Two semesters required.

MUSC 345 Jazz Theory and Improvisation I (3) Prerequisite: MUSC251 or permission of department. Jazz theory, notational conventions, improvisation techniques, reading and analysis of music, and performance in small combo format.

MUSC 346 Jazz Theory and Improvisation II (3) Prerequisite: MUSC345 or permission of department. Continuation of MUSC345 including scoring and transcription.

MUSC 349 Honors Seminar in Music (1) Corequisite: MUSC339. Repeatable to 2 credits. Group discussion of projects undertaken in MUSC339. Two semesters required.

MUSC 379 Opera Workshop (1) Four hours of laboratory per week. Repeatable to 4 credits. Open to music and non-music majors (by audition). Operatic production and performance, performance techniques and coaching, stage direction, set design, costume design and make-up. Repertory will include smaller operatic works, excerpts or scenes.

MUSC 386 Experiential Learning (3-6) Prerequisite: permission of department. Junior standing.

MUSC 388 Music Internship (3) Prerequisite: permission of department. Corequisite: MUSC389. Repeatable to 6 credits. Pre-professional field work in music.

MUSC 389 Music Internship Analysis (1) One hour of lecture per week. Corequisite: MUSC388. Repeatable to 2 credits. Documentation and evaluation of field work experience.

MUSC 400 Music Pedagogy (3) Prerequisite: MUSP315; and permission of department. Conference course. A study of major pedagogical treatises in music, and an evaluation of pedagogical techniques, materials, and procedures.

MUSC 428 Repertoire Coaching of Vocal or Chamber Music (2) Pre- or corequisite: MUSC328. A course for piano students who wish to go further than the work offered in MUSC128, MUSC228 and MUSC328 by becoming specialists in the areas of vocal coaching or chamber music coaching. Elements of pedagogy, conducting and responsible artistic decision-making for the entire musical production.

MUSC 435 Music of North America (3) Prerequisite: permission of department. A survey of North American music from Colonial times to present.

MUSC 436 Jazz: Then and Now (3) Major styles and influential artists of the past 75 years of jazz.

MUSC 439 Collegium Musicum (1) Prerequisite: permission of department. Repeatable to 5 credits. Open to undergraduates and graduates, music majors and non-majors. Procurement, edition and performance of music not belonging to a standard repertory: early music, compositions for unusual performing media, works which demand reconstruction of their original circumstances of performance. Outcome of a semester's work may be one or more performances for the public.

MUSC 443 Solo Vocal Literature (3) Prerequisite: MUSC330, MUSC331 or equivalent. The study of solo vocal literature from the Baroque Cantata to the Art Song of the present. The Lied, Melodie, vocal chamber music and the orchestral song are examined.

MUSC 444 Wind and Percussion Literature (1) Prerequisite: permission of department. Corequisite: MUSP419 or MUSP420. Recital program notes and written projects in wind or percussion literature.

MUSC 445 Survey of the Opera (3) Prerequisite: MUSC330, MUSC331 or equivalent. A study of the music, librettos and composers of the standard operas.

MUSC 446 String Literature (1) Prerequisite: MUSP316 and permission of department. Recital program notes and written projects in string literature.

MUSC 448 Selected Topics in Music (1-3) Prerequisite: permission of department. A maximum of three credits may be applied to music major requirements. Junior standing. Repeatable to 6 credits if content differs.

MUSC 450 Musical Form (3) Prerequisite: MUSC251. A study of the principles of organization in music with emphasis on eighteenth and nineteenth century European music. Reading and analysis of scores exemplifying the musical forms.

MUSC 451 Analysis of Music (3) Prerequisite: MUSC450 or permission of instructor. A course in the analysis of music. Discussion of individual works, with emphasis on their unique characteristics and on the relation of analysis to performance.

MUSC 452 Keyboard Harmony (2) Prerequisite: MUSC251. Keyboard performance of musical score for vocal and instrumental ensembles and keyboard realization of basso continuous parts.

MUSC 455 Theory of Jazz (3) Prerequisite: MUSC250 or permission of department. For MUSC majors only. An aural-theoretical examination of melodic and harmonic function in jazz with emphasis on bebop. "Layered" harmonic analysis combined with melodic analysis of solo transcriptions applied to the creation of small group arrangements of "standard" tunes.

MUSC 460 Tonal Counterpoint I (3) Prerequisite: MUSC251 or permission of department. A course in Eighteenth-Century contrapuntal techniques, analysis and original composition of two-voice dances, preludes, and inventions. Includes an introduction to the study of fugue and canon.

MUSC 461 Theory and Analysis of Atonal and Twelve-tone Music (2) Prerequisite: MUSC251 and MUSC450; and permission of department. For MUSC Theory majors only. An advanced technical introduction to theory and analysis of atonal and twelve-tone music, with an emphasis on music by Schoenberg, Webern, Bartok, and Stravinsky.

MUSC 462 Music Notation on Computers (3) Prerequisite: MUSC150 or permission of department. An in-depth, hands-on study of music notation using computers. All issues of standard notation practice are examined, including score preparation, text in vocal music, keyboard idioms and the extraction and printing of parts from larger ensemble scores.

MUSC 463 Applications in Music Technology (3) A hands-on study of computer hardware and software that makes use of the MIDI (Musical Instrument Digital Interface) specification. This protocol allows computers, synthesizers and various other devices to send and receive information about musical performance, notation and sound. The course focuses on two of the most frequently used applications on MIDI -- sequencing and music notation. Also included is an introduction to digital audio. No previous experience with computers is required. Ability to read music on a grand staff (treble and bass clef) is recommended.

MUSC 464 The Theories of Heinrich Schenker (3) Prerequisite: MUSC251 and MUSC450; and permission of department. Not open to students who have completed MUSC651. Credit will be granted for only one of the following: MUSC464 or MUSC651. An advanced analysis course in tonal music with specific emphasis on the theories of the early 20th century theorist Heinrich Schenker. Specific analyses of music by Bach, Mozart, Haydn, Beethoven, Chopin, and Brahms.

MUSC 465 Theory in Analysis (3) Prerequisite: MUSC251 and MUSC450; and permission of department. For MUSC majors only. An advanced readings course in theory of music analysis, embracing philosophy of approach and analytic applications. Topics include standards for discourse, musical sound and context, segmentation and categorization, among others.

MUSC 467 Piano Pedagogy I (3) Prerequisite: permission of department. A study of major pedagogical treatises in music, and an evaluation of pedagogical techniques, materials, and procedures.

MUSC 468 Piano Pedagogy II (3) Prerequisite: MUSC467 and permission of department. Repeatable to 6 credits. Application of the studies begun in MUSC467 to the actual lesson situation. Evaluation of results.

MUSC 470 Harmonic and Contrapuntal Practices of the Twentieth Century (3) Prerequisite: MUSC251 or equivalent; and permission of department. A theoretical and analytical study of twentieth century materials.

MUSC 471 Contemporary Compositional Techniques (3) Prerequisite: MUSC470 and permission of department. Continuation of MUSC470, with emphasis on the analysis of individual works written since 1945.

MUSC 480 Music in Antiquity and the Middle Ages (3) Survey of western music from Hellenic times to 1450.

MUSC 481 Music in the Renaissance (3) Survey of western music from 1450 to 1600.

MUSC 482 Music in the Baroque Era (3) Survey of western music from 1600 to 1750.

MUSC 483 Music in the Classic Era (3) Survey of western music from 1750 to 1820.

MUSC 484 Music in the Romantic Era (3) Survey of western music from 1820 to 1900.

MUSC 485 Music in the 20th Century (3) Prerequisite: permission of department. Survey of western music from 1900 to the present.

MUSC 486 Orchestration I (3) Prerequisite: MUSC251 and permission of department. A study of the ranges, musical functions and technical characteristics of the instruments and their color possibilities in various combinations. Practical experience in orchestrating for small and large ensembles.

MUSC 490 Conducting (2) Prerequisite: MUSC251. Vocal and instrumental baton techniques.

MUSC 491 Conducting II (2) Prerequisite: MUSC490 or equivalent. Baton techniques applied to score reading, rehearsal techniques, tone production, style and interpretation.

MUSC 492 Keyboard Music I (3) Prerequisite: permission of department. The history and literature of harpsichord and solo piano music from its beginning to the romantic period. Emphasis is placed on those segments of repertory which are encountered in performance and teaching situations at the present time.

MUSC 493 Keyboard Music II (3) Prerequisite: MUSC492 and permission of department. The history and literature of harpsichord and solo piano music from the Romantic period to the present. Emphasis is placed on those segments of repertory which are encountered in performance and teaching situations at the present time.

MUSC 494 Survey of Theory (3) Prerequisite: MUSC251 and permission of department. A study of the major contributions of music theorists from Greek antiquity through the twentieth century.

MUSC 499 Independent Studies (1-3) Prerequisite: permission of department. May be repeated once for credit. Independent research on a topic chosen in consultation with the instructor, which may culminate in a paper or appropriate project.

MUSP -- Music Performance

Undergraduate Music Performance Courses are available in three series: Minor Series: 42-credits each course. Prerequisite: permission of department chairperson. Limited to music majors studying a secondary instrument and to non-music majors. Each course in the series must be taken in sequence. The initial election for all new students, both freshman and transfer, is 102. Transfer students are evaluated for higher placement after one semester of study. One-half hour private lesson per week plus assigned independent practice. MUSP 102, 103 Freshman Courses. MUSP 202, 203 Sophomore Courses. MUSP 302, 303 Junior Courses. MUSP 402, 403 Senior Courses. Principal Series: 42 or 4 credits each course. Prerequisites: departmental audition, entrance examination, and permission of department chairperson. Limited to majors in music programs other than performance and composition. Each course in the series must be taken in sequence. The initial election for all new students, both freshman and transfer, is 109. Transfer students are evaluated for higher placement after one semester of study. One-hour private lesson per week plus assigned independent practice. Courses 109, 208, and 409 may be repeated once for credit, but only one successful attempt in each course may be applied towards baccalaureate degree requirements. MUSP 109, 110, Freshman Courses. MUSP 207, 208 Sophomore Courses. MUSP 305, 306 Junior Courses. MUSP 409, 410 Senior Courses. Recital required in MUSP 410. Major Series: 42 or 4 credits each course. Prerequisites: departmental audition, entrance examination, and permission of department chairperson. Limited to majors in performance and composition. Each course in the series must be taken in sequence. The initial election for all new students, both freshman and transfer, is 119. Transfer students are evaluated for higher placement after one semester of study. One-hour private lesson per week plus assigned independent practice. Courses 119, 218, and 419 may be repeated once for credit, but only one successful attempt in each course may be applied towards baccalaureate degree requirements. MUSP 119, 120 Freshman Courses. MUSP 217, 218 Sophomore Courses. MUSP 315, 316 Junior Courses. MUSP 419, 420 Senior Courses. Recital required in MUSP 420. Instrument designation: each student taking a music performance course must indicate the instrument chosen by adding a suffix to the proper course number, such as: MUSP 102A music performance--piano. A--piano; B--voice; C--violin; D--viola; E--cello; F--bass; G--flute; H--oboe; I--clarinet; J--bassoon; K--saxophone; L--horn; M--trumpet; N--trombone; O--tuba; P--euphonium; Q--percussion; T--composition; U--world instruments; V--harp; W--electronic composition; X--hist inst - keyboard; Y--hist inst - strings; Z--hist inst - winds.

MUSP 386 Experiential Learning (3-6) Prerequisite: Learning Proposal approved by the Office of Experiential Learning Programs, faculty sponsor, and student's internship sponsor. Junior standing.

NFSC -- Nutrition and Food Science

NFSC 100 Elements of Nutrition (3) Fundamentals of human nutrition. Nutrient requirements related to changing individual and family needs.

NFSC 112 Food: Science and Technology (3) Two hours of lecture and one hour of discussion/recitation per week. Introduction to the realm of food science, food technology and food processing. An overview of the largest industry in the U.S. with emphasis on the science of food and the technology of food preservation from harvest through processing and packaging to distribution and consumer utilization.

NFSC 250 Science of Food (4) Three hours of lecture and three hours of laboratory per week. Prerequisites: NFSC112; and CHEM103; and CHEM113; permission of department. For NFSC majors only. Composition and structure of food with emphasis on chemical, physical, and biological properties, as well as quality characteristics of food products. Food preparation lab with emphasis on the experimental study of food.

NFSC 315 Nutrition During the Life Cycle (3) Prerequisite: NFSC100 or NFSC200. Formerly NUTR315. A study of how development throughout life, including prenatal development, pregnancy, lactation, adolescence and aging, alter nutrient requirements. Students will apply this knowledge to the dietary needs and food choices of these different groups.

NFSC 350 Foodservice Operations (5) Three hours of lecture and five hours of laboratory per week. Prerequisite: NFSC250. Pre- or corequisite: BSCI223. Corequisite: BMGT364. For Dietetics majors only. Introduction to management. Responsibilities in quantity food production and purchasing in a foodservice operation. Laboratory experience in planning, preparation, and service of meals which meet the nutritional needs of the consumer.

NFSC 380 Methods of Nutritional Assessment (3) Two hours of lecture and three hours of laboratory per week. Prerequisite: NFSC315. Corequisite: BCHM461. For NFSC majors only. Methods of assessing human nutritional status of populations and individuals. These methods include dietary, anthropometric, clinical evaluations and biochemical measurements.

NFSC 386 Experiential Learning (3-6) Prerequisite: permission of department. Formerly FDSC386 and NUTR386. Junior standing.

NFSC 388 Honors Thesis Research (3-6) Prerequisite: admission to AGNR Honors Program. Repeatable to 6 credits if content differs. Undergraduate honors thesis research conducted under the direction of an AGNR faculty member in partial fulfillment of the requirements of the College of AGNR Honors Program. The thesis will be defended to a faculty committee.

NFSC 398 Seminar (1) Formerly FDSC398. Presentation and discussion of current literature and research in food science.

NFSC 399 Special Problems in Food Science (1-3) Formerly FDSC399. Designed for advanced undergraduates. Specific problems in food science will be assigned.

NFSC 403 Medicinal and Poisonous Plants (2) Prerequisites: BSCI105 and CHEM104. A study of plants important to humans that have medicinal or poisonous properties. Emphasis on plant source, plant description, the active agent and its beneficial or detrimental physiological action and effects.

NFSC 410 Nutritional Genomics (3) Prerequisite: NFSC440 or permission of department. The emerging discipline of nutritional genomics, also known as nutrigenomics, is the study of effects of diet on the activity of an individual's genes and health, and the study of how different genetic variations affect nutrient metabolism. This course is designed to acquaint the students with current concepts, knowledge and strategies for understanding nutritional genomics.

NFSC 412 Food Processing Technology (4) Three hours of lecture and three hours of laboratory per week. Prerequisites: CHEM241/CHEM242; NFSC414; NFSC431; and NFSC434. Corequisites: NFSC421 and NFSC423. Recommended: MATH220. Provides in-depth study of the major industrial modes of food preservation. It integrates aspects of the biology, microbiology, biochemistry and engineering disciplines as they relate to food processing technology and food science.

NFSC 414 Mechanics of Food Processing (4) Three hours of lecture and one hour of laboratory per week. Prerequisite: PHYS121. Credit will be granted for only one of the following: ENBE414 or NFSC414. Formerly ENBE414. Applications in the processing and preservation of foods, of power transmission, hydraulics, electricity, thermodynamics, refrigeration, instruments and controls, materials handling and time and motion analysis.

NFSC 421 Food Chemistry (3) Prerequisite: BCHM461. Basic chemical and physical concepts are applied to the composition and properties of foods. Emphasis on the relationship of processing technology to the keeping quality, nutritional value, and acceptability of foods.

NFSC 422 Food Product Research and Development (3) One hour of lecture and four hours of laboratory per week. Prerequisite: permission of department. Senior standing. For FDSC majors only. Formerly FDSC422. A capstone course for FDSC majors. A study of the research and development of new food products. Application of food technology, engineering, safety and packaging are integrated by teams of students to develop a new food product from concept to pilot plant scale-up. Students will travel to nearby food processing plants on two to four Saturdays during the semester.

NFSC 423 Food Chemistry Laboratory (3) Four hours of laboratory per week. Pre- or corequisite: NFSC421. Analysis of the major and minor constituents of food using chemical, physical and instrumental methods in concordance with current food industry and regulatory practices. Laboratory exercises coincide with lecture subjects in NFSC421.

NFSC 425 International Nutrition (3) Prerequisite: course in basic nutrition. Nutritional status of world population; consequences of malnutrition on health and mental development; and local, national, and international programs for nutritional improvement.

NFSC 430 Food Microbiology (3) Prerequisite: BSCI233 or equivalent. Also offered as ANSC430. Credit will be granted for only one of the following: ANSC430. Formerly FDSC430. A study of microorganisms of major importance to the food industry with emphasis on food-borne outbreaks, public health significance, bioprocessing of foods, disease control, and the microbial spoilage of foods.

NFSC 431 Food Quality Control (4) Three hours of lecture and two hours of laboratory per week. Definition and organization of the quality control function in the food industry; preparation of specifications; statistical methods for acceptance sampling; in-plant and processed product inspection. Instrumental and sensory methods for evaluating sensory quality, identity and wholesomeness and their integration into grades and standards of quality. Statistical Process Control (SPC).

NFSC 434 Food Microbiology Laboratory (3) One hour of lecture and five hours of laboratory per week. Pre- or corequisite: NFSC430. Also offered as ANSC434. Credit will be granted for only one of the following: NFSC434 or ANSC434. Formerly FDSC434. A study of techniques and procedures used in the microbiological examination of foods.

NFSC 440 Advanced Human Nutrition (4) Four hours of lecture per week. Prerequisites: NFSC100 or NFSC200; and BCHM462; and BSCI440. A critical study of physiologic, molecular and metabolic influences on utilization of carbohydrates, lipids, proteins, vitamins, macro-and micro- minerals, and nonnutritive components of food. Interactions of these nutrients and food components will be examined relative to maintaining health.

NFSC 450 Food and Nutrient Analysis (3) One hour of lecture and four hours of laboratory per week. Prerequisites: NFSC100 or NFSC200; and BCHM461. Formerly NUTR450. Methods and practices of the analysis of foods and nutrients. An overview of the principles and basic mechanisms used in many of the analytical procedures commonly used in food and nutrition research. Emphasis will be placed on hands-on development of skills necessary to complete each analytical procedure; and on the accurate and concise description of the methodology and results from their application and on the regulations governing food analysis for nutritional labeling.

NFSC 460 Medical Nutrition Therapy (4) Three hours of lecture and two hours of laboratory per week. Prerequisites: NFSC380 and NFSC440. Formerly NUTR460. Modifications of the normal adequate diet to meet human nutritional needs in acute and chronic diseases and metabolic disorders.

NFSC 468 Practicum in Nutrition (1-6) Prerequisite: permission of department. Repeatable to 6 credits if content differs. Formerly NUTR468. In-service training and practical experience in the application of the principles of normal and/or therapeutic nutrition in an approved community agency, clinical facility or nutrition research laboratory.

NFSC 470 Community Nutrition (3) Two hours of lecture and three hours of discussion/recitation per week. Prerequisites: NFSC100 or NFSC200; and NFSC315. Formerly NUTR470. Perspectives underlying the practice of nutrition services in community settings. Assessment of needs, program planning and evaluation. Programs and strategies to meet nutrition needs outside the acute care setting, such as nutrition education and food assistance. National nutrition policy and federal initiatives in nutrition will be examined. Students will be required to travel to local community nutrition sites during the semester.

NFSC 490 Special Problems in Nutrition (2-3) Prerequisites: NFSC440 and permission of department. Individually selected problems in the area of human nutrition.

NFSC 491 Issues and Problems in Dietetics (3) Five hours of lecture per week. Prerequisite: NFSC350 and permission of department. Corequisite: NFSC460. Senior standing. For DIET majors only. A capstone course for dietetics majors. Students will integrate knowledge and theory of nutrition, food, management, psychology, and social behaviors necessary to support quality dietetic practice. Working in teams, students will participate in case studies, simulated situations and community projects. Individuals and groups will present cases as well as papers on published research.

NFSC 498 Selected Topics (1-3) Prerequisite: permission of department. Repeatable to 6 credits if content differs. Selected current aspects of food.

PERS -- Persian

PERS 101 Elementary Persian I (4) Not open to native/fluent speakers of Persian. Credit will be granted for only one of the following: PERS101 or FOLA138K. Formerly FOLA138K. Introduction to the alphabet, pronunciation patterns, greetings, basic structures, and other fundamentals, with emphasis on oral and aural skills.

PERS 102 Elementary Persian II (4) Not open to native/fluent speakers of Persian. Prerequisite: PERS101 or equivalent. Credit will be granted for only one of the following: PERS102 or FOLA139K. Formerly FOLA139K. Continuation of PERS101 with emphasis on the use of formal language, vocabulary building, and reading.

PERS 201 Intermediate Persian I (3) Not open to native/fluent speakers of Persian. Prerequisite: PERS102 or equivalent. Development of speaking, reading, writing, listening and cultural knowledge through wide variety of activities.

PERS 202 Intermediate Persian II (3) Not open to native/fluent speakers of Persian. Prerequisite: PERS201 or equivalent. Further development of speaking, writing, listening and cultural knowledge, with special focus on culture.

PERS 211 Intermediate Conversation (3) Prerequisite: PERS102 or equivalent. Recommended: PERS201 taken concurrently. Development of aural and oral skills in Persian. Various genres and registers of speech. Special focus on contemporary daily life, with use of up-to-date media sources.

PERS 251 Modern Iran (3) General sociopolitical introduction to modern Iran from establishment of the Qajar dynasty in the late 18th century to the present day. Taught in English.

PERS 283 Iranian Cinema (3) Introduction to Iranian cinema, society, and culture. Taught in English.

PERS 301 Advanced Persian I (3) Not open to native/fluent speakers of Persian. Prerequisite: PERS202 or permission of department. Development of speaking, reading, writing, listening and cultural knowledge through wide variety of activities, especially reading.

PERS 302 Advanced Persian II (3) Not open to fluent/native speakers of Persian. Prerequisite: PERS301 or equivalent. Further development of speaking, reading, writing, listening and cultural knowledge, with special focus on reading, in a variety of literary genres.

PERS 353 Iranian Life in Literature and Film (3) Treats major themes in modern literature and life of Iranians. Topics examined include Iranian identity, religious traditions, modern life, and expatriate communities. In English.

PERS 371 Introduction to Persian Literature in Translation (3) Introduction to classical and modern canons of Persian literature in historical, esthetic, and social context. Taught in English.

PERS 399 Directed Study in Persian (1-3) Prerequisite: permission of department. Sophomore standing. Repeatable to 9 credits if content differs. Directed study with faculty supervision.

PERS 411 Readings in Iranian Islam (3) Prerequisite: permission of department. In-depth study of Iranian Islam via Islamic texts. Develops competency in speaking, reading, writing, and listening comprehension at advanced level. In Persian.

PERS 441 Islam in Iran (3) Advent and development of Islamic culture in Iran. In English.

PERS 452 Modern Persian Literature: A Survey (3) Prerequisite: permission of department. Surveys development of poetry and prose in the Persian-speaking world in modern times. Periods and genres. Content varies. Mastery of Persian is required.

PERS 498 Special Topics in Persian Studies (3) Prerequisite: permission of instructor. Repeatable to 9 credits if content differs. Topic and language to be announced when offered.

PHIL -- Philosophy

PHIL 100 Introduction to Philosophy (3) An introduction to the literature, problems, and methods of philosophy either through a study of some of the main figures in philosophic thought or through an examination of some of the central and recurring problems of philosophy.

PHIL 140 Contemporary Moral Issues (3) The uses of philosophical analysis in thinking clearly about such widely debated moral issues as abortion, euthanasia, homosexuality, pornography, reverse discrimination, the death penalty, business ethics, sexual equality, and economic justice.

PHIL 170 Introduction to Logic (3) Development of analytical reasoning skills through study of formal logics, reasoning systems, and fallacious inference patterns.

PHIL 209 Philosophical Issues (3) Repeatable to 6 credits if content differs. An examination of selected philosophical issues of general interest.

PHIL 230 Philosophy of the Arts (3) A survey of theoretical perspectives on the arts from Plato to the present, along with critical examination of specific works of art. Analysis of concepts central to thought about art, such as beauty, form, content, expression, representation, interpretation, creation, style, medium, realism, aesthetic experience, and aesthetic value.

PHIL 233 Philosophy in Literature (3) Reading and philosophical criticism of fiction, poetry, and drama, dealing with issues of moral, religious, and metaphysical significance.

PHIL 234 Fundamental Concepts of Judaism (3) Also offered as JWST250. Not open to students who have completed JWST250. Credit will be granted for only one of the following: PHIL234 or JWST250. A conceptional introduction to Judaism, analyzing its fundamental concepts from both analytical and historical perspectives. Discussion of "normative" Judaism as well as other conceptions of Judaism. Topics include: God, the Jewish people, authority, ethics, the sacred and the profane, particularism and universalism.

PHIL 235 Authority, Faith, and Reason in Judaism (3) Also offered as JWST251. Not open to students who have completed JWST251 or HEBR298J. Credit will be granted for only one of the following: PHIL235 or JWST251. A broad survey of the concepts of authority, faith, and reason in Jewish tradition from the Bible to the modern period, and their interrelationships.

PHIL 236 Philosophy of Religion (3) A philosophical study of some of the main problems of religious thought: the nature of religious experience, the justification of religious belief, the conflicting claims of religion and science, and the relation between religion and morality.

PHIL 245 Political and Social Philosophy I (3) A critical examination of such classical political theories as those of Plato, Hobbes, Locke, Rousseau, Mill, Marx, and such contemporary theories as those of Hayek, Rawls, and recent Marxist thinkers.

PHIL 250 Philosophy of Science I (3) Main issues in the philosophy of science. Special attention to the ways scientific developments have influenced the philosophy of science and how philosophy of science has influenced scientific progress. Case studies of selected historical episodes in which science and philosophy have interacted significantly, focusing on the physical, biological, or social sciences.

PHIL 256 Philosophy of Biology I (3) Issues in the discovery and justification of biological theories and models. Focus on cases from twentieth century biology, such as the genetic revolution or evolutionary theory.

PHIL 261 Philosophy of the Environment (3) Not open to students who have completed HONR218F or PHIL209N. Formerly HONR218F. An evaluation of different kinds of arguments for the claim that the natural environment should be preserved. Perspectives cut across the disciplines of philosophy (environmental ethics and philosophies of nature); economics (cost-benefit analysis); and biology (evolution, ecology, environmental studies).

PHIL 273 Logic for Philosophy (3) Major concepts underlying the modern formal logic development by Frege and Russell and their importance in contemporary philosophy.

PHIL 280 Perspectives on the Mind: Philosophy and Cognitive Science (3) The role of representation and reasoning in cognition considered from the differing perspectives of the cognitive-science disciplines: linguistics, philosophy, neuroscience, psychology and computer science.

PHIL 282 Action and Responsibility (3) Problems in ethics and philosophy of mind concerning such topics as personal agency, moral motivation, guilt, free will, and responsibility.

PHIL 308 Studies in Contemporary Philosophy (3) Prerequisite: six credit hours in philosophy. Repeatable to 6 credits if content differs. Problems, issues, and points of view of current interest in philosophy.

PHIL 310 Ancient Philosophy (3) Prerequisite: six credit hours in philosophy or classics. A study of the origins and development of philosophy and science in ancient Greece, focusing on the pre-Socratics, Socrates, Plato, and Aristotle.

PHIL 320 Modern Philosophy (3) Prerequisite: six credit hours in philosophy. A study of major philosophical issues of the 16th, 17th, and 18th centuries through an examination of such philosophers as Descartes, Newton, Hume, and Kant.

PHIL 324 Existentialism (3) Prerequisite: six credit hours in philosophy. A study of authors such as Kierkegaard, Nietzsche, Heidegger, Sarte, and Camus on issues of human morality, freedom, and suffering.

PHIL 328 Studies in the History of Philosophy (3) Prerequisite: six credit hours of philosophy. Repeatable to 6 credits if content differs. Problems, issues, and points of view in the history of philosophy.

PHIL 332 Philosophy of Beauty (3) Prerequisite: three courses in philosophy or permission of department. Philosophical theories, historical and contemporary, of beauty, sublimity, and other aesthetic qualities, of aesthetic experience, and of aesthetic judgment.

PHIL 341 Ethical Theory (3) Prerequisite: six credit hours in philosophy. Junior standing. A critical examination of classical and contemporary systems of ethics, such as those of Aristotle, Kant, Mill, and Rawls.

PHIL 342 Moral Problems in Medicine (3) Prerequisite: PHIL100, PHIL140, or permission of department. A critical examination of the moral dimensions of decision-making in health related contexts. Readings are drawn from philosophical, medical, and other sources.

PHIL 347 Philosophy of Law (3) Prerequisite: three credit hours in philosophy. Credit will be granted for only one of the following: PHIL347 or PHIL447. Formerly PHIL447. Examination of fundamental concepts related to law, e.g. legal systems, law and morality, justice, legal reasoning, responsibility.

PHIL 354 Philosophy of Physics (3) Two hours of lecture and one hour of discussion/recitation per week. Prerequisite: PHYS260 or MATH220 or equivalent; or permission of department. Recommended: PHYS270, PHYS401. Not open to students who have completed PHIL452. Credit will be granted for only one of the following: PHIL354 or PHIL452. An introduction to current issues at the interface of physics and philosophy, associated with our current picture of the physical world as fundamentally quantum mechanical. Topics include the debate between Einstein and Bohr on the objectivity and completeness of the quantum description, nonlocality and Bell's theorem, realism and the measurement problem, irreversibility and the arrow of time.

PHIL 360 Philosophy of Language (3) Prerequisite: Two courses in philosophy, one of which must be PHIL170, PHIL173, or PHIL370; or permission of department. An inquiry into the nature and function of language and other forms of symbolism.

PHIL 362 Theory of Knowledge (3) Prerequisite: PHIL170 and 3 additional credits in Philosophy. Not open to students who have completed PHIL462. Formerly PHIL462. Some central topics in the theory of knowledge, such as perception, memory, knowledge, and belief, skepticism, other minds, truth, and the problems of induction.

PHIL 364 Metaphysics (3) Prerequisite: six credit hours in philosophy. Not open to students who have completed PHIL464. Formerly PHIL464. The study of some central metaphysical concepts and issues including the nature and validity of metaphysical thinking, universals, identity, substance, time, God, and reality.

PHIL 366 Philosophy of Mind (3) Prerequisite: six credit hours in philosophy. Not open to students who have completed PHIL380. An introduction to core issues in the philosophy of mind, focusing especially on the basic metaphysical question of dualism versus physicalism.

PHIL 370 Symbolic Logic (3) Prerequisite: PHIL170 or CMSC250; or permission of department. Not open to students who have completed PHIL271 or PHIL371. Credit will be granted for only one of the following: PHIL271, PHIL370 or PHIL371. A review of propositional and predicate logic and related topics and an introduction to the semantics and metatheory of first-order logic.

PHIL 386 Experiential Learning (3-6) Prerequisite: permission of department. Junior standing.

PHIL 407 Gay and Lesbian Philosophy (3) An examination in historical and social context of personal, cultural, and political aspects of gay and lesbian life, paying particular attention to conceptual, ontological, epistemological, and social justice issues.

PHIL 408 Topics in Contemporary Philosophy (3) Repeatable if content differs. An intensive examination of contemporary problems and issues. Source material will be selected from recent books and articles.

PHIL 412 The Philosophy of Plato (3) Prerequisite: nine credit hours in philosophy. A critical study of selected dialogues.

PHIL 414 The Philosophy of Aristotle (3) Prerequisite: three courses in philosophy. A critical study of selected portions of Aristotle's writings.

PHIL 416 Medieval Philosophy (3) Prerequisite: six credit hours in philosophy. A study of philosophical thought from the fourth to the fourteenth centuries. Readings selected from Christian, Islamic, and Jewish thinkers.

PHIL 417 The Golden Age of Jewish Philosophy (3) Prerequisite: three credit hours in philosophy or permission of department. Also offered as JWST452. Not open to students who have completed JWST452. Credit will be granted for only one of the following: PHIL417 or JWST452. Jewish philosophy from Maimonides in the 12th century to the expulsion of the Jews from Spain at the end of the 15th century. Topics include the limitations of human knowledge, creation of the world, foreknowledge and free will, and the existence of God.

PHIL 424 The Philosophy of Spinoza (3) Prerequisite: three courses in philosophy or permission of department. Also offered as JWST453. Not open to students who have completed JWST453. Credit will be granted for only one of the following: PHIL424 or JWST453. An investigation of the metaphysical, ethical and political thought of the 17th century philosopher Benedict Spinoza.

PHIL 425 Modern Jewish Philosophy (3) Prerequisite: six credit hours in philosophy or permission of department. Also offered as JWST455. Not open to students who have completed JWST455. Credit will be granted for only one of the following: JWST455 or PHIL425. A study of philosophy in the nineteenth century through an examination of such figures as Hegel, Marx, Kierkegaard, Nietzsche, and Mill.

PHIL 426 Twentieth Century Analytic Philosophy (3) Prerequisite: permission of department. Senior standing. Credit will be granted for only one of the following: PHIL326 or PHIL426. Formerly PHIL326. Major issues in twentieth century analytic philosophy examined through such philosophers as Frege, Russell, Carnap, Moore and Wittgenstein.

PHIL 427 Wittgenstein (3) Prerequisite: six credit hours in philosophy or permission of department. The early and late works of Wittgenstein: atomism, logic, and the picture theory in the Tractatus; roles, meaning, criteria, and the nature of mental states in the Philosophical Investigations and other posthumous writings.

PHIL 428 Topics in the History of Philosophy (3) Prerequisites: PHIL310 and PHIL320; or permission of department. Repeatable if content differs.

PHIL 431 Aesthetic Theory (3) Prerequisite: nine credits in philosophy or permission of department. Study of the theory of the aesthetic as a mode of apprehending the world and of the theory of criticism, its conceptual tools and intellectual presuppositions.

PHIL 433 Issues in Jewish Ethics and Law (3) Prerequisite: three credit hours in philosophy or Jewish studies (excluding Hebrew language), or permission of department. Also offered as JWST451. Not open to students who have completed JWST451 or HEBR451. Credit will be granted for only one of the following: PHIL433, HEBR451 or JWST451. Philosophical and meta-legal questions concerning the nature of Jewish law and its relation to morality.

PHIL 440 Contemporary Ethical Theory (3) Prerequisite: PHIL341 or permission of instructor. Contemporary work on fundamental problems in ethical theory, such as whether there are moral truths, whether and how our moral claims can be justified, what exactly makes an act right or wrong, the nature of moral language, and the role of reason and emotion in moral judgment.

PHIL 445 Contemporary Political Philosophy (3) Prerequisite: three credit hours in philosophy or political theory or permission of department. Sophomore standing. Major trends in contemporary political philosophy: liberal, libertarian, communitarian, socialist, feminist.

PHIL 446 Law, Morality, and War (3) Prerequisite: GVPT300, GVPT401, PHIL341, or permission of department. Also offered as GVPT403. An exploration of fundamental moral and legal issues concerning war.

PHIL 454 Philosophy of Space and Time (3) Prerequisite: six credit hours in philosophy. Senior standing. A non-technical investigation of philosophical issues in the foundations of physics. Topics may include traditional philosophical problems of space and time, metaphysical issues about the nature of particles and fields, and philosophical problems associated with the introduction of probability into physics, such as the problem of irreversibility in thermodynamics and the problem of objectivity in quantum theory.

PHIL 456 Philosophy of Biology II (3) Prerequisite: PHIL250 or PHIL256 or a Life Science major or permission of department. Questions about concepts, reasoning, explanation, etc., in biology, and their relations to those of other areas of science. Case studies of selected aspects of the history of biology, especially in the twentieth century.

PHIL 458 Topics in the Philosophy of Science (3) Prerequisite: PHIL250 or permission of department; when the topic for a given semester demands, additional philosophical or scientific prerequisites may be required by the instructor. Repeatable to 6 credits if content differs. A detailed examination of a particular topic or problem in philosophy of science.

PHIL 470 Logical Theory (3) Prerequisite: PHIL370 or permission of instructor. This course will treat a selection of the most important topics in modern logic: alternative proof-theoretic presentations of logical systems, completeness proofs for classical propositional and first-order logic, some basic computability theory, basic limitative results (such as Godel's incompleteness theorems), and some results concerning second-order logic. The primary focus of the course is a study of these fundamental topics, but we will also discuss some of the philosophical issues they raise.

PHIL 478 Topics in Philosophical Logic (3) Prerequisite: PHIL370 or permission of instructor. Recommended: PHIL470. Repeatable to 9 credits if content differs. Methods and results of philosophical logic, the application of logical techniques to the study of concepts or problems of philosophical interest. Content will vary, either treating a particular logical area in detail--such as modal logic, conditional logic, deontic logic, intuitionistic or relevance logic, theories of truth and paradox--or surveying a number of these different areas.

PHIL 480 Philosophy of Emotion (3) Prerequisite: six credit hours in philosophy, at least one 300-level or above; or permission of department. Philosophic contributions to the debate about the nature of emotions and their role in rational and moral motivation.

PHIL 481 Philosophy of Psychology: Representation (3) Prerequisite: six credit hours in philosophy; one of which must be PHIL280 or PHIL366. Semantics and representations within computational framework: intentionality, explicit vs. implicit representation, syntax vs. semantics of thought, connectionist approaches, images, classical vs. prototype theories of concepts.

PHIL 482 Philosophy of Psychology: Subjectivity (3) Prerequisite: six credit hours in philosophy; one of which must be PHIL280 or PHIL366. The nature of subjectivity: problems of "point of view," the "qualities" or "feel" of things, emotions, consciousness - whether these phenomena can be captured by a computational theory of mind.

PHIL 484 Reason, Self and Will (3) Prerequisite: six credit hours in philosophy courses, at least one 300-level or above; or permission of department. Issues in philosophy of mind, ethics, and neighboring areas of psychology and related fields concerning such topics as: autonomy, freedom of action, free will; weakness of will and practical reasoning; the nature of the self or person; the sources of moral motivation.

PHIL 485 Philosophy of Neuroscience (3) Prerequisite: six credit hours in philosophy, one of which should be PHIL250, PHIL256, PHIL280, or PHIL366; or permission of department. Philosophical and methodological issues relating to brain science, including: the place of neuroscience in cognitive science, the nature of mental representation and processing in brains, bounded-resonance models in neuroanatomy and neurophysiology.

PHIL 488 Topics in Philosophy of Cognitive Studies (3) Prerequisite: three credit hours in philosophy or permission of department. Repeatable to 9 credits if content differs. Examination of a particular topic or problem in philosophy of cognitive studies.

PHIL 489 Undergraduate Seminar in Philosophy (3-6) Prerequisite: permission of department. Repeatable to 6 credits if content differs. An intensive examination of a philosophical topic or topics.

PHIL 498 Topical Investigations (1-3)

PHYS -- Physics

PHYS 101 Contemporary Physics - Revolutions in Physics (3) Prerequisite: eligibility for placement in MATH140 or MATH220. Not open to students who have completed PHYS111. For non-science students who are interested in the evolution of scientific thought and its present day significance. Historical, philosophic, experimental and theoretical aspects of physics are presented. Topics in mechanics, relativity, electricity and magnetism, and nuclear physics are covered.

PHYS 102 Physics of Music (3) CORE Distributive Studies Physical Science Laboratory Course only when taken concurrently with PHYS103. Prerequisite: Placement in MATH110 or higher. Credit not applicable towards the minimum requirements for a major in physics and astronomy. Credit will be granted for only one of the following: PHYS102 and PHYS499C. A study of the physical basis of sound, acoustical properties of sound, the human ear and voice, reproduction of sound, electronic music, acoustical properties of auditoriums, and other selected topics.

PHYS 103 Physics of Music Laboratory (1) Two hours of laboratory per week. CORE Distributive Studies Physical Sciences Laboratory Course only when taken concurrently with PHYS 102. Pre- or corequisite: PHYS102. Credit not applicable towards the minimum requirements for a major in physics and astronomy. Optional laboratory to accompany PHYS 102. Laboratory experiments, including the velocity of sound, sound quality and wave shape, traveling and standing waves, fourier synthesis and analysis, musical synthesizer, psychoacoustics, and audio equipment.

PHYS 104 How Things Work: Science Foundations (3) Prerequisite: Placement in MATH110 or higher. This is a course with a non-mathematical emphasis designed to study the basics of mechanical, electrical, and optical devices that are commonly found in the world around us. The general approach would be to look inside things to observe how they work.

PHYS 105 Physics for Decision Makers: Global Energy Crisis (3) This marquee course will consider the global energy crisis from a scientific perspective. Topics include basic laws of energy and thermodynamics, their effects on energy production and distribution, greenhouse gas, global warming and policy options for decision makers. This course is aimed at the non-science major.

PHYS 106 Light, Perception, Photography, and Visual Phenomena (3) CORE Distributive Studies Physical Sciences Laboratory Course only when taken with PHYS 107. Credit not applicable towards the minimum requirements for a major in physics and astronomy. Intended for the general student, this course will cover topics in optics which require minimal use of mathematics. Principles of optics, lenses, cameras, lasers and holography, physics of the eye, color vision and various visual phenomena such as rainbows.

PHYS 107 Light, Perception, Photography and Visual Phenomena Laboratory (1) Two hours of laboratory per week. CORE Distributive Studies Physical Sciences Laboratory Course only when taken with PHYS 106. Pre- or corequisite: PHYS106. Credit not applicable towards the minimum requirements for a major in physics and astronomy. Optional laboratory to accompany PHYS106. Laboratory experiments include geometrical optics (lenses, cameras, eye), optical instruments (telescope, binoculars), photography, perception, color phenomena, and wave phenomena.

PHYS 111 Physics in the Modern World (3) A survey course in general physics emphasizing the role that physics plays in science, technology, and society today. The course is concept oriented and minimal use of mathematics is made. Intended for the general student; does not satisfy the requirements of the professional schools.

PHYS 115 Inquiry into Physics (4) Five hours of laboratory per week. Recommended: High school physics. For elementary education, early childhood majors only. Not open to students who have completed PHYS117. Credit will be granted for only one of the following: PHYS115 or PHYS117. Intended for students majoring in neither the physical nor the biological sciences. Use of laboratory-based and inquiry-based methods to study some of the basic ideas of physical sciences.

PHYS 117 Introduction to Physics (4) Three hours of lecture and two hours of laboratory per week. Prerequisite: qualification to enter MATH110. Intended for students majoring in neither the physical nor biological sciences. A study of the development of some of the basic ideas of physical science.

PHYS 121 Fundamentals of Physics I (4) Three hours of lecture, two hours of laboratory, and one hour of discussion/recitation per week. Prerequisite: MATH112 or MATH115. The first part of a two-semester course in general physics treating the fields of mechanics, heat, sound, electricity, magnetism, optics, and modern physics. Together with PHYS122, this generally satisfies the minimum requirement of medical and dental schools.

PHYS 122 Fundamentals of Physics II (4) Three hours of lecture, two hours of laboratory, and one hour of discussion/recitation per week. Prerequisite: PHYS121 or equivalent. A continuation of PHYS121, which together with it, generally satisfies the minimum requirement of medical and dental schools.

PHYS 141 Principles of Physics (4) Three hours of lecture, two hours of laboratory, and one hour of discussion/recitation per week. Corequisite: MATH141 or MATH221. Credit will not be granted for PHYS171 and PHYS161 or PHYS141 or former PHYS191. The first of a two-semester series in general physics. The first semester covers the fields of mechanics, thermodynamics, and special relativity. This survey course will use calculus and is recommended for chemistry and zoology majors. It also satisfies the requirements of medical and dental schools.

PHYS 142 Principles of Physics (4) Prerequisite: PHYS141 or equivalent. Credit will be granted for only one of the following: PHYS142, PHYS260 and PHYS261 (formerly: PHYS262) or PHYS272. A continuation of PHYS141 covering waves, electricity and magnetism, optics and modern physics.

PHYS 161 General Physics: Mechanics and Particle Dynamics (3) Three hours of lecture and one hour of discussion/recitation per week. Pre- or corequisite: MATH141. Credit will not be granted for PHYS171 and PHYS161 or PHYS141 or former PHYS191. First semester of a three-semester calculus-based general physics course. Laws of motion, force, and energy; principles of mechanics, collisions, linear momentum, rotation, and gravitation.

PHYS 165 Introduction to Programming in the Physical Sciences (3) Prerequisite: PHYS141, PHYS161 or PHYS171; or 3-5 on AP PHYS exam. Introduction to programming using examples in the physical sciences. Provides instruction in the techniques of upper-level languages such as Fortran, C, and Pascal, as well as an introduction to the object oriented programming techniques used in Python, C++ and Java. Includes strong component of visualization and graphing.

PHYS 170 Professional Physics Seminar (1) Corequisite: MATH140. Recommended: high school physics. Provides a look at some of the major developments of current interest in physics research and discusses the activities physicists undertake in research, education, industry, government, and other areas of the economy.

PHYS 171 Introductory Physics: Mechanics and Relativity (3) Prerequisite: MATH140 and a high school physics course or permission of department. Corequisite: MATH141. Credit will not be granted for PHYS171 and PHYS161 or PHYS141 or former PHYS191. First semester of a three semester sequence for physics majors and those desiring a rigorous preparation in the physical sciences: kinematics, Newton's laws, energy and work, linear and angular momenta, temperature and pressure, ideal gas law, and special relativity.

PHYS 174 Physics Laboratory Introduction (1) Three hours of laboratory per week. Corequisite: MATH140. Recommended: high school physics. Introduces students to the techniques of data gathering and analysis. This course will lay a foundation for higher-level labs in physics and the physical sciences. Students will learn to use laboratory equipment such as calipers, meters, oscilloscopes, and computer interfaces. Techniques of measurement and error analysis will be presented. Students will be taught to use the computer for data analysis with an emphasis on using spreadsheets.

PHYS 260 General Physics: Vibration, Waves, Heat, Electricity and Magnetism (3) Three hours of lecture and one hour of discussion/recitation per week. CORE Physical Science Lab (PL) Course when take concurrently with PHYS 261. Prerequisite: MATH141 and PHYS161. Corequisite: PHYS261. Credit will be granted for only one of the following: PHYS142; PHYS260 and PHYS 261 (Formerly: PHYS262) or PHYS272. Formerly PHYS262. Second semester of a three-semester calculus-based general physics course. Vibrations, waves, fluids; heat, kinetic theory, and thermodynamics; electrostatics, circuits, and magnetism. PHYS260 and PHYS261 must be taken in the same semester and the grade for the courses will be combined into a single grade for both. To pass, students must complete passing work in both PHYS260 and PHYS261.

PHYS 261 General Physics: Vibrations, Waves, Heat, Electricity and Magnetism (Laboratory) (1) Three hours of laboratory per week. CORE Physical Science Lab (PL) course only when taken concurrently with PHYS 260. Corequisite: PHYS260. Formerly PHYS262A. Lab includes experiments on mechanics, vibrations, waves, heat, electricity and magnetism. PHYS260 and PHYS261 (lab) must be taken in the same semester and the grade for the courses will be combined into a single grade for both. To pass, students must complete passing work in both PHYS260 and PHYS261.

PHYS 270 General Physics: Electrodynamics, Light, Relativity and Modern (3) Physics Three hours of lecture and one hour of discussion/recitation per week. CORE Physical Science Lab (PL) Course when take concurrently with PHYS 271. Prerequisite: PHYS260, PHYS261 and MATH241. Corequisite: PHYS271. Credit will be granted for only one of the following: PHYS270 and PHYS271 (Formerly: PHYS263) or PHYS273. Formerly PHYS263. Third semester of a three-semester calculus-based general physics course. Electrodynamics, Maxwell's equations and electromagnetic waves, geometrical optics, interference, diffraction, special theory of relativity, and modern physics. PHYS270 and PHYS271 (lab) must be taken in the same semester and the grade for the courses will be combined into a single grade for both. To pass, students must complete passing work in both PHYS270 and PHYS271.

PHYS 271 General Physics: Electrodynamics, Light, Relativity and Modern (1) Physics (Laboratory) Three hours of laboratory per week. CORE Physical Science Lab (PL) course only when taken concurrently with PHYS 270. Prerequisite: PHYS261. Corequisite: PHYS270. Formerly PHYS263A. Lab includes experiments on ac circuits, magnetism, light and modern physics. PHYS270 and PHYS271 (lab) must be taken in the same semester and the grade for the courses will be combined into a single grade for both. To pass, students must complete passing work in both PHYS270 and PHYS271.

PHYS 272 Introductory Physics: Fields (3) CORE Distributive Studies Physical Sciences Laboratory Course only when taken concurrently with PHYS 275. Prerequisites: (PHYS171 or PHYS161) and MATH141. Corequisite: MATH241. Credit will be granted for only one of the following: PHYS272 or PHYS260 and PHYS261 (Formerly: PHYS262) or PHYS142. Second semester of a calculus based general physics course. Universal gravitation, electric and magnetic fields and potentials, simple circuits, Maxwell's equations in integral form. Continues the application of mathematics to conceptual models, now with more abstract components.

PHYS 273 Introductory Physics: Waves (3) Prerequisites: PHYS272, and MATH241. Corequisites: MATH246 or MATH414. Credit will be granted for only one of the following: PHYS270 and PHYS271 (Formerly: PHYS263) or PHYS273. Oscillations and AC circuits using complex variables, Fourier series and integrals, waves on strings, sound; electromagnetic waves from Maxwell's equations in differential form; physical optics.

PHYS 275 Experimental Physics I: Mechanics and Heat (2) One hour of lecture and three hours of laboratory per week. CORE Distributive Studies Physical Sciences Laboratory Course only when taken concurrently with PHYS272. Prerequisites: (PHYS171 or PHYS161) and PHYS174. Corequisite: PHYS272. Methods and rationale of experimental physics. Intended for physics majors and science and engineering students who desire a more rigorous approach. Experiments chosen from the areas of mechanics (from PHYS171), gas laws, and heats. Theory and applications of error analysis. CORE Physical Science Lab (PL) Course only when taken concurrently with PHYS272.

PHYS 276 Experimental Physics II: Electricity and Magnetism (2) Four hours of laboratory per week. Prerequisites: PHYS272 and PHYS275. Credit will be granted for only one of the following: PHYS276 or former PHYS295. Second course in the three semester introductory sequence. Methods and rationale of experimental physics. Experiments chosen from the fields of electricity and magnetism including electrostatics, magnetostatics, magnetic induction, AC circuits.

PHYS 299 Special Problems in Physics (1-6) Prerequisite: permission of department. May be taken no more than twice. Maximum of eight credits applicable to B.S. degree program. Research or special study to complement courses taken elsewhere which are not fully equivalent to those in departmental requirements. Credit according to work done.

PHYS 305 Physics Shop Techniques (1) Three hours of laboratory per week. Prerequisite: permission of department. Machine tools, design and construction of laboratory equipment.

PHYS 318 Topics in Contemporary Physics (3) Prerequisite: PHYS122 and/or PHYS111 or permission of department. A survey of topics of current research and public interest. Intended for the non-physics or non-science major. Topics covered will include lasers, quantum liquids, cosmology, elementary particles and geophysics.

PHYS 374 Intermediate Theoretical Methods (4) Three hours of lecture and one hour of discussion/recitation per week. Prerequisites: PHYS273 and MATH246. Corequisite: MATH240. Introduces or reviews areas of mathematics that are regularly used in upper level and graduate courses in physics, including important areas from complex variables, Fourier analysis, partial differential equations and eigenvalue problems. These methods will be studied in the context of relevant physics applications. A current standard symbolic manipulation program will be introduced and its appropriate use in theoretical analyses will be taught.

PHYS 375 Experimental Physics III: Electromagnetic Waves, Optics and Modern (3) Physics Six hours of laboratory per week. Prerequisites: PHYS273 and PHYS276. Credit will be granted for only one of the following: PHYS375 or former PHYS296. Third course in the three-semester introductory sequence. Methods and rationale of experimental physics. Experiments chosen from the areas of electromagnetic waves, optics and modern physics.

PHYS 386 Experiential Learning (3-6) Prerequisite: Learning Proposal approved by the Office of Experiential Learning Programs, faculty sponsor, and student's internship sponsor. Junior standing.

PHYS 389 Undergraduate Thesis Research (1-6) Prerequisite: permission of department. For PHYS majors only. Repeatable to 6 credits. Independent directed research and study on a topic selected by the student in consultation with his or her advisor. Final written thesis and oral defense will be expected.

PHYS 398 Independent Studies Seminar (1-16) Credit according to work done. Enrollment is limited to students admitted to the independent studies program in physics.

PHYS 399 Special Problems in Physics (1-3) Two hours laboratory work per week for each credit. Prerequisite: PHYS405 and permission of department. One to three credits may be taken concurrently each semester. Selected advanced experiments. (Will be given with sufficient demand.)

PHYS 401 Quantum Physics I (4) Prerequisite: PHYS273. Corequisites: PHYS374 and MATH240. Credit will be granted for only one of the following: PHYS401 or PHYS421. Formerly PHYS421. Introduces some quantum phenomena leading to wave-particle duality. Schroedinger theory for bound states and scattering in one dimension. One-particle Schroedinger equation and the hydrogen atom.

PHYS 402 Quantum Physics II (4) Prerequisites: PHYS401, and PHYS374, and MATH240. Credit will be granted for only one of the following: PHYS402 or former PHYS422. Formerly PHYS422. Quantum states as vectors; spin and spectroscopy, multiparticle systems, the periodic table, perturbation theory, band structure, etc.

PHYS 404 Introduction to Statistical Thermodynamics (3) Prerequisites: PHYS273 or equivalent, and MATH241. Credit will be granted for only one of the following: PHYS404 or former PHYS414. Formerly PHYS414. Introduction to basic concepts in thermodynamics and statistical mechanics.

PHYS 405 Advanced Experiments (3) Prerequisite: PHYS375. For PHYS majors only. Formerly PHYS395. Advanced laboratory techniques. Selected experiments from many fields of modern physics. Emphasis on self-study of the phenomena, data analysis, and presentation in report form.

PHYS 410 Classical Mechanics (4) Prerequisite: PHYS374. Theoretical foundations of mechanics with extensive application of the methods. Various mathematical tools of theoretical physics.

PHYS 411 Intermediate Electricity and Magnetism (4) Prerequisite: PHYS374. Foundations of electromagnetic theory, with extensive applications of the methods. Thorough treatment of wave properties of solutions of Maxwell's equations.

PHYS 420 Principles of Modern Physics (3) Prerequisite: (PHYS270 and PHYS271 {formerly: PHYS263} or PHYS273); and MATH246. A survey of atomic and nuclear phenomena and the main trends in modern physics. Appropriate for students in engineering and other physical sciences.

PHYS 426 Mathematica for Scientists and Engineers (3) Prerequisites: (PHYS270 and PHYS271 {Formerly: PHYS263} or PHYS273) and MATH241. Provides a working knowledge of the powerful symbolic, numerical, and graphical tools provided by Mathematica for problem solving in science and engineering, and the ability to use functional programming, pattern matching, and rule sets for symbolic and numerical computations. Intended for science and engineering students who are currently taking advanced undergraduate or graduate courses in their field.

PHYS 428 Physics Capstone Research (2-4) Prerequisite: permission of instructor. Senior standing. For PHYS majors only. Repeatable to 4 credits. Individual, focused research under the guidance of a faculty member. Discussion, presentations and, if appropriate, research group projects involved. Student must submit final research paper for completion of course. Paper may also serve as thesis required for High Honors in Physics. Not intended as a general "reading course" (see PHYS499).

PHYS 429 Atomic and Nuclear Physics Laboratory (3) Prerequisite: PHYS405. Classical experiments in atomic physics and more sophisticated experiments in current techniques in nuclear physics.

PHYS 431 Properties of Matter (3) Prerequisites: MATH241 and (PHYS270 and PHYS271 {formerly: PHYS263}), PHYS 401 or PHYS420. Also offered as ENMA460. Credit will be granted for only one of the following: ENMA460 or PHYS431. Introduction to solid state physics. Electromagnetic, thermal, and elastic properties of metals, semiconductors, insulators and superconductors.

PHYS 441 Topics in Nuclear and Particle Physics (3) Prerequisite: PHYS401 or PHYS402; and PHYS411; or permission of instructor. Corequisite: PHYS402. A survey of concepts in particle and nuclear physics, with a topical emphasis on the impact of the Weak Interaction and the discovery of Parity Violation.

PHYS 474 Computational Physics (3) Prerequisite: permission of department. Credit will be granted for only one of the following: PHYS474 or PHYS499C. Formerly PHYS499C. Introduction to computational physics. Topics covered include numerical integration of ordinary and partial differential equations, image analysis, Fourier transforms, statistical methods, analysis of data using prepackaged routines, and the Unix programming environment. Emphasis is on the equations of physical systems as applied to physics and astronomy, and on manipulation of laboratory and observational field data. Students complete semester projects.

PHYS 483 Biophysics and Theoretical Biology (3) Designed for advanced and mature students who may have only minimal knowledge of biological processes but are well grounded in physics. Areas in bioscience where physics, biophysical chemistry, and mathematical analysis fuse to provide definition for biologic statics and dynamics.

PHYS 485 Electronic Circuits (4) Two hours of lecture and four hours of laboratory per week. Prerequisite: PHYS405. Corequisite: PHYS301 or PHYS374. Theory and application to experimental physics of modern semiconductor analog and digital circuits. Emphasis on understanding passive and active elements in practical circuits. Topics span the range from simple transistor circuits to microcomputers.

PHYS 499 Special Problems in Physics (1-16) For PHYS majors only. Research or special study. Credit according to work done.

PLSC -- Plant Sciences

PLSC 100 Introduction to Horticulture (4) Two hours of lecture and two hours of laboratory per week. An overview to the art and science of horticulture. Relationships between plant science and plant production, the use of horticultural plants and plant stress as influenced by cultural practices.

PLSC 101 Introductory Crop Science (4) Two hours of lecture and two hours of laboratory per week. Major crop plants including: anatomy, physiology, morphology, history, use, adaptation, culture, improvement and economic importance.

PLSC 171 Introduction to Urban Ecosystems (3) Not open to students who have completed NRSC271. Credit will be granted for only one of the following: NRSC171, NRSC271, or PLSC171. Formerly NRSC171. The diverse and significant impacts of strategically maintaining greenspace within communities will be highlighted. Students learn about the role of green infrastructure in relation to quality of life and environment. Also taught are basic principles central to urban ecosystems, which contain vegetation, natural resources, the built environment and are dominated by people. The impacts of science, community development, landscape management, public policies, laws and their interactions on sustainability are studied.

PLSC 200 Land Surveying (2) One hour of lecture and two hours of laboratory per week. Understanding the principles of land surveying such as measurements of distance, elevation and angles, instrumentation, and mapping.

PLSC 201 Plant Structure and Function (4) Three hours of lecture and three hours of laboratory per week. Prerequisite: PLSC100 or PLSC101; and CHEM103 or CHEM131 and CHEM132. Not open to students who have completed NRSC201. Formerly NRSC201. The relationship between plant structure and function and how the environment influences changes in the physiology to control higher plant growth and development are studied.

PLSC 202 Management of Horticultural Crops (4) Three hours of lecture and three hours of laboratory per week. Prerequisite: PLSC100. Recommended: BSCI105. A study of the principles and practices used in the production of horticultural crops. Management of soils and soilless media, vegetative and reproductive growth and development, pests, harvest, post-harvest environment and marketing will be presented for model commodities.

PLSC 203 Plants, Genes and Biotechnology (3) Prerequisite: BSCI103 or BSCI105. Not open to students who have completed NRSC203. Formerly NRSC203. An overview of the history, genetics, and reproductive mechanisms for agronomic and horticultural plants that examines mechanisms of genetic improvement ranging from traditional plant breeding to tissue culture and genetic engineering. Social and political issues such as germplasm preservation and international intellectual property rights will also be discussed.

PLSC 253 Woody Plants for Mid-Atlantic Landscapes I (3) Two hours of lecture and two hours of laboratory per week. Prerequisite: PLSC100. A field and laboratory study of trees, shrubs, and vines used in ornamental plantings. Major emphasis is placed on native deciduous plant materials.

PLSC 254 Woody Plants for Mid-Atlantic Landscape II (3) Two hours of lecture and two hours of laboratory per week. Prerequisite: PLSC100 and PLSC253; or permission of instructor. A field and laboratory study of trees, shrubs, and vines used in ornamental plantings. Major emphasis is placed on introduced and evergreen plant materials.

PLSC 255 Landscape Design and Implementation (4) Two hours of lecture and four hours of laboratory per week. Prerequisite: PLSC253 or PLSC254. Not open to students who have completed LARC141 and LARC341. Principles of landscape architecture applied to residential and commercial landscaping: informal and formal designs and plan graphics.

PLSC 271 Plant Propagation (3) Two hours of lecture and three hours of laboratory per week. Prerequisites: BSCI105 and PLSC100. A study of the principles and practices in the propagation of plants.

PLSC 272 Principles of Arboriculture (3) Two hours of lecture and three hours of laboratory per week. Prerequisite: NRSC171 and PLSC100. Recommended: ENST200. Not open to students who have completed NRSC272. Formerly NRSC272. The establishment and maintenance of healthy trees in an urban setting will be studied. Lectures will focus on the environmental constraints to tree development in the city, and the role of physiological processes in regulating tree vigor. Laboratory exercises will cover the unique aspects of urban soils, tree valuation procedures, pruning and training, and supervised climbing.

PLSC 303 International Crop Production (3) Prerequisite: BSCI105 or equivalent. An introduction to the biological dimension of world hunger. The problems and potentials for increasing world food supply based on current agronomic knowledge. Emphasis on international aspects of food crop production and the interrelationships between agriculture and human populations in the developing world.

PLSC 305 Introduction to Turf Management (3) Two hours of lecture and two hours of laboratory per week. Principles of turf culture. Identification and uses of turfgrass species; turfgrass fertilization, cultivation, mowing and establishment; and the identification of turf pests.

PLSC 320 Principles of Site Engineering (3) One hour of lecture and five hours of laboratory per week. Prerequisites: LARC140 or PLSC255 and PLSC200. For PLSC and NRSC majors only. The study and application of landscape construction principles as applied to grading, drainage, layout and vehicular and pedestrian circulation.

PLSC 321 Landscape Structures and Materials (3) One hour of lecture and five hours of laboratory per week. Prerequisite: PLSC320. Also offered as LARC321. Credit will be granted for only one of the following: LARC321, or PLSC321. An examination of the use, properties, and detailing of materials used in landscape construction. The use and design of structures in the landscape.

PLSC 361 Commercial Principles of Landscape Management (3) Two hours of lecture and three hours of laboratory per week. Prerequisite: BMGT220 or permission of department. Corequisite: PLSC100 or PLSC101. Recommended: LARC160. Credit will be granted for only one of the following: PLSC261 or PLSC361. Formerly PLSC261. Commercial management practices associated with the landscape build/design and maintenance industry are emphasized. Lectures focus on strategic planning, job cost management, bidding and estimating, marketing, and personnel management. Laboratories and field trips familiarize students with the landscape industry by interfacing with corporations and industry-related term projects.

PLSC 388 Honors Thesis Research (3-6) Prerequisite: admission to AGNR Honors Program. Repeatable to 6 credits if content differs. Undergraduate honors thesis research conducted under the direction of an AGNR faculty member in partial fulfillment of the requirements of the College of AGNR Honors Program. The thesis will be defended to a faculty committee.

PLSC 389 Internship (1-3) Prerequisite: permission of department. Junior standing. For NRSC and LARC majors only. Repeatable to 6 credits if content differs. Formerly NRSC389. Credit will be given for practical work carried out at one or more horticultural, agronomic, landscape industries, botanical gardens, or arboreta under formally arranged internships.

PLSC 398 Seminar (1) Prerequisite: senior standing. For NRSC and LARC majors only. Formerly NRSC398. Oral presentation of the results of investigational work by reviewing recent scientific literature in the various phases of natural resource sciences, horticulture and agronomy.

PLSC 399 Special Problems in Plant Science (1-3) Prerequisite: Twelve credits in PLSC and permission of instructor. For NRSC majors only. Repeatable to 6 credits. Research projects in Plant Science including field, greenhouse, laboratory, studio and/or library studies. Research is conducted under the direction of a faculty member.

PLSC 400 Environmental Plant Physiology (3) Two hours of lecture and two hours of laboratory per week. Not open to students who have completed NRSC401. Formerly NRSC401. An introduction to the basic physical and physiological principles necessary for understanding the interactions between plants and their environment. The overall objective is to understand plant responses and adaptions to the environment and the ecological relevance of these responses.

PLSC 401 Pest Management Strategies for Turfgrass (3) Prerequisite: PLSC305. Interdisciplinary view of weed, disease, and insect management from an agronomy perspective. Plant responses to pest invasion, diagnosis of pest-related disorders, and principles of weed, disease and insect suppression through cultural, biological and chemical means are discussed.

PLSC 402 Sports Turf Management (3) Two hours of lecture and three hours of laboratory per week. Prerequisite: PLSC305 and PLSC401. Sports turf management, including design, construction, soil modification, soil cultural techniques, pesticide use, fertilization, and specialized equipment.

PLSC 403 Crop Breeding (3) Pre- or corequisite: BSCI222 or equivalent or permission of department. A review of genetic principles and descriptions of contemporary and traditional methods of breeding self-pollinated, cross-pollinated, and vegetatively propagated crop plants.

PLSC 406 Forage Crops (3) Prerequisite: BSCI105. Recommended: BSCI106. World grasslands and their influence on early civilizations; current impact on human food supply; role of forages in soil conservation and a sustainable agriculture. Production and management requirements of major grass and legume species for silage and pasture for livestock feed. Cultivar development, certified seed production and distribution.

PLSC 407 Advanced Crop Science (3) Prerequisite: BSCI105 and PLSC101. A study of principles of production for forage crops, corn, small grains, rice, millets, sorghums, soybeans and other oil seed crops. Their seed production, processing, distribution and the current federal and state seed control programs for these agronomic crops will also be discussed.

PLSC 410 Commercial Turf Maintenance and Production (3) Two hours of lecture and three hours of laboratory per week. Prerequisite: PLSC305 or permission of department. Agronomic programs and practices used in hydroseeding, commercial lawn care, sod production and seed production. Current environmental, regulatory and business management issues confronting the turfgrass industry.

PLSC 420 Principles of Plant Pathology (4) Three hours of lecture and three hours of laboratory per week. Prerequisite: CHEM104 or CHEM113 or CHEM271 and CHEM272; and PLSC201 or equivalent. Not open to students who have completed NRSC410. Formerly NRSC410. An introduction to the causal agents, nature and management of plant diseases with particular attention paid to economically important diseases of horticultural and agronomic crops.

PLSC 430 Water and Nutrient Planning for the Nursery and Greenhouse Industry (3) Two hours of lecture and three hours of discussion/recitation per week. Prerequisite: CHEM131 and CHEM132; or ENST200; or permission of instructor. Recommended: PLSC456 or PLSC432. Not open to students who have completed NRSC400. Credit will be granted for only one of the following: NRSC400 or PLSC430. Formerly NRSC400. Skills will be developed in order to write nutrient management plans for the greenhouse and nursery industry. Completion of this course can lead to professional certification in nutrient planning by the State of Maryland after MDA examinations are passed.

PLSC 432 Greenhouse Crop Production (3) Two hours of lecture and two hours of laboratory per week. Prerequisite: PLSC201 (formerly NRSC201) and PLSC202. Pre- or corequisite: BSCI442. The commercial production and marketing of ornamental plant crops under greenhouse, plastic houses and out-of-door conditions.

PLSC 433 Technology of Fruit and Vegetable Production (4) Three hours of lecture and three hours of laboratory per week. Prerequisite: PLSC201, PLSC202, PLSC271, and NRSC411 or equivalent. Corequisite: BSCI442. Recommended: ENST200 or equivalent. Junior standing. Credit will be granted for only one of the following: NRSC411 or PLSC433. A critical analysis of research work and application of the principles of plant physiology, chemistry and botany to practical problems in the commercial production of fruit and vegetable crops.

PLSC 452 Principles of Landscape Establishment and Maintenance (3) Two hours of lecture and two hours of laboratory per week. Prerequisites: PLSC202, PLSC253, and PLSC254. For NRSC majors only. Establishment and maintenance of landscape plants, stressing the physiological determinants of recommended practices.

PLSC 453 Weed Science (3) Two hours of lecture and three hours of laboratory per week. Weed identification, ecology, and control (cultural, mechanical, biological, and chemical methods).

PLSC 456 Nursery Crop Production (3) Two lectures a week and four all-day compulsory Saturday laboratories. Prerequisites: PLSC201, PLSC202, and PLSC271 or equivalent. The methods used for producing ornamental plants and an introduction to the different types of commercial nurseries.

PLSC 460 Application of Knowledge in Plant Sciences (3) Two hours of lecture and two hours of laboratory per week. Prerequisite: PLSC100 or PLSC101; or permission of instructor. Recommended: ENST200, ENGL393 or equivalent and PLSC389 or PLSC399. Senior standing in Plant Sciences major or in another related major. A capstone course based on interactions with plant science professionals and student-led class discussions. Students will apply their knowledge and experience to practical issues in the discipline, further development critical thinking ability, and enhance their communication, teamwork, and professional skills. Topics will include nutrient management, integrated pest management, plant interactions with urban and rural ecosystems, planning of public grounds, plant biotechnology, and teaching skills.

PLSC 471 Forest Ecology (3) Prerequisite: BSCI106 or PLSC201. An understanding of the forest ecosystem, its structure and the processes that regulate it are provided. It also considers changes that occur in forests, the interaction of environment and genetics in promoting ecosystem sustainability, and the role of human influences on urban forest ecosystems.

PLSC 472 Capstone-Urban Forest Project Management (3) Prerequisites: ENST200, PLSC272, and PLSC471. Senior standing. For NRSC majors only. Students will synthesize the ideas and information learned from their studies in urban forestry. Working in teams, students will complete projects involving real-world issues. Student projects will use scientific, social, political and ethical considerations in an interdisciplinary approach to provide solutions to their problem.

PLSC 473 Woody Plant Physiology (3) Prerequisite: BSCI442 or PLSC201 or equivalent. Not open to students who have completed NRSC473. Formerly NRSC473. Concentration is placed on physiological processes important to woody plant growth and development. Emphasis will be placed on current concepts and theories of how woody plants grow and develop, and the critical assessment of current research in woody plant physiology. Course readings will include textbook assignments and selected papers from the current scientific literature.

PLSC 474 Physiology of Maturation and Storage of Horticultural Crops (3) Two hours of lecture and two hours of laboratory per week. Pre- or corequisite: BSCI442. The physiological and biochemical changes occurring during storage of horticultural commodities. Application of scientific principles to handling and storage of fresh produce.

PLSC 475 Silviculture (4) Three hours of lecture and two hours of laboratory per week. Prerequisite: PLSC100 or BSCI106; or permission of instructor. Recommended: PLSC253 or PLSC254. Junior standing. Silviculture is the science of forest stand dynamics and the biotic and abiotic factors affecting it. Issues addressed will be related to forest stand development, from regeneration to harvesting and the sustainable management for multiple uses. Topics covered will be related to natural and managed stands in both rural and urban environments.

PLSC 489 Special Topics in Plant Science (1-3) Repeatable to 6 credits if content differs. A lecture and or laboratory series organized to study a selected phase of Plant Science not covered by existing courses. Credit according to time scheduled and organization of the course.

PORT -- Portuguese

PORT 104 Intensive Elementary Portuguese (4) Not open to students who have completed PORT101. Covers speaking, reading, writing, listening, and culture of Portuguese-speaking world.

PORT 204 Intensive Intermediate Portuguese (4) Prerequisite: PORT104 or permission of department. Not open to students who have completed PORT203. Covers speaking, reading, writing, listening, and culture of Portuguese-speaking world.

PORT 205 Intermediate Reading and Conversation (3) Prerequisite: PORT204 or permission of department. Development of spoken Portuguese at intermediate level based on written assignments and exams on readings in a variety of genres.

PORT 223 Portuguese Culture (3) Political, social, intellectual, and literary forces shaping culture of contemporary Portugal from the formation of the country to the present. In English.

PORT 224 Brazilian Culture (3) Pluralistic formation of Brazilian culture, based on European, African and Indian contributions. Lectures, discussions, slides, video, and film presentations. In English.

PORT 225 The Cultures of Portuguese-Speaking Africa (3) Cultures of the Portuguese speaking countries of Angola, Cape Verde, Sao Tome e Principe, Guinea-Bissau and Mozambique. Special attention to the development of national cultures in multicultural societies and to the role of women. Conducted in English.

PORT 228 Selected Topics in Latin American Literature and Society (3-6) Repeatable to 6 credits if content differs. Also offered as SPAN228. Credit will be granted for only one of the following: PORT228 or SPAN228. Variable cultural studies topics on literature and society in contemporary Latin America. Taught in English.

PORT 231 Introduction to the Literatures of the Portuguese Language (3) Prerequisite: PORT205 or permission of department. Combines studies of Brazilian and Portuguese literatures, along with the examination of literary trends, concepts and terms to texts and excerpts of longer works, chosen for their cultural, historical and stylistic interest. Taught in Portuguese.

PORT 234 Issues in Latin American Studies I (3) Two hours of lecture and one hour of discussion/recitation per week. Also offered as SPAN234 and LASC234. Credit will be granted for only one of the following: PORT234 or SPAN234 or LASC234. Interdisciplinary study of major issues in Latin America and the Caribbean, including Latin America's cultural mosaic, migration and urbanization. Democratization and the role of religions. Taught in English.

PORT 235 Issues in Latin American Studies II (3) Two hours of lecture and one hour of discussion/recitation per week. Also offered as SPAN235 and LASC235. Credit will be granted for only one of the following: PORT235 or SPAN235 or LASC235. Major issues shaping Latin American and Caribbean societies including the changing constructions of race, ethnicity, gender and class as well as expressions of popular cultures and revolutionary practices. A continuation of PORT/LASC/SPAN 234, but completion of 234 is not a prerequisite. Taught in English.

PORT 311 Advanced Portuguese: Contemporary Cultural Issues (3) Prerequisite: PORT205 or permission of department. Development of speaking, reading, writing, listening skills through study of contemporary culture of Portuguese-speaking countries. Institutions, values, current events, cultural production.

PORT 320 Survey of Portuguese Literature (3) Portuguese poetry, fiction and drama from the twelfth century to the present.

PORT 321 Survey of Brazilian Literature (3) Selected literary texts from the period of formation through nineteenth century romanticism to twentieth century.

PORT 322 African Literature of Portuguese Expression (3) Prerequisite: PORT204. Recommended: PORT205 and PORT225. Representative literary texts (poetry, essay and fiction) from the African nations of Angola, Mozambique, Cape Verde, Guinea-Bissau and Sao Tome e Principe including discussion of acculturated literary discourse, role of literature in the development of national consciousness and use of oral tradition.

PORT 350 History of the Portuguese Language (3) Prerequisite: PORT231 or permission of department. Evolution of the Portuguese language from its formation to present days; differences between Continental, African and Brazilian usages.

PORT 378 Brazilian Cinema (in Translation) (3) Junior standing. The study of Brazilian film from the late 1950s to the present with a special view to the relationship between cinema and social changes. Taught in English.

PORT 386 Experiential Learning (3-6) Prerequisite: permission of department. Junior standing.

PORT 399 Independent Study in Portuguese (1-3) Prerequisite: permission of department. Repeatable to 3 credits. Specific readings in literature under the supervision of a faculty member of the department.

PORT 405 Portuguese for Spanish Speakers (3) Intensive basic grammar, reading and auditory comprehension. Native or acquired fluency in Spanish required.

PORT 408 Special Topics in Portuguese Literature (3) Repeatable to 6 credits if content differs. Major themes and literary developments from the late 18th century to the present.

PORT 409 Special Topics in Brazilian Literature (3-6) Major themes and literary development from the late eighteenth century to the present. Specific topic to be announced each time the course is offered.

PORT 470 Modernism in Brazilian Prose Fiction (3) Prerequisite: permission of department. Prose of the Modernist movement in Brazil from 1922, including literary, sociological and historical dimensions.

PORT 476 Africa in Brazil (3) Junior standing. Not open to students who have completed PORT478A. Cultural expressions resulting from the African presence in Brazil from the sixteenth century to the present, including literature, oral traditions, religion, music, dance, and food.

PORT 478 Themes and Movements of Luso-Brazilian Literature in Translation (3) Repeatable to 6 credits if content differs. A study of specific themes and movements either in Portuguese or Brazilian literature, as announced. Designed for students for whom the literatures would be inaccessible in Portuguese.

PORT 480 Machado de Assis (3) Prerequisite: permission of department. Fiction of Machado de Assis covering his romantic and realistic periods.

PSYC -- Psychology

PSYC 100 Introduction to Psychology (3) A basic introductory course, intended to bring the student into contact with the major problems confronting psychology and the more important attempts at their solution. PSYC 108 Honors Seminar (3)

PSYC 200 Statistical Methods in Psychology (3) Prerequisite: PSYC100; and (MATH111 or MATH140 or MATH220) with a C (2.0) or higher. Credit will be granted for only one of the following: BIOM301, BMGT230, ECON321, EDMS451, GEOG305, GVPT422, PSYC200, or SOCY201. A basic introduction to quantitative methods used in psychological research.

PSYC 206 Developmental Biopsychology (3) Prerequisite: PSYC100. Biological basis of behavioral development in relation to genetic, constitutional, anatomical, physiological, and environmental factors. Emphasis upon both phylogenetic and ontogenetic research findings in biological psychology.

PSYC 221 Social Psychology (3) Prerequisite: PSYC100. The influence of social factors on the individual and on interpersonal behavior. Includes topics such as conformity, attitude change, person perception, interpersonal attraction, and group behavior.

PSYC 301 Biological Basis of Behavior (3) Prerequisites: BSCI105 and PSYC100. An introduction to the anatomical structures and physiological processes that determine behavior. After a study of the basic functioning of the nervous system, the course will examine the acquisition and processing of sensory information, the neural control of movement, and the biological bases of complex behaviors such as sleep, learning, memory, sex, language, and addiction.

PSYC 309 Special Topics in Psychology (1-3) Prerequisite: PSYC100. Sophomore standing. For PSYC majors only. Repeatable to 6 credits if content differs. Topics of current interest which represent extensions of or additions to topics covered in more general topical courses.

PSYC 310 Perception (3) Prerequisite: PSYC100; and {BSCI105, BSCI106, CHEM103 or PHYS121}. Not open to students who have completed PSYC410. A survey of phenomena and theories of perception including psychological, anatomical, physiological, and environmental factors important in determining how we perceive the world. Historical background will be examined as well as contemporary research.

PSYC 318 Community Interventions: Theory and Research (3) Prerequisite: PSYC100 and permission of department Restricted to PSYC and WMST majors. Formerly PSYC309A. Survey and critical examination of a problem in the community and related interventions. Analysis of theory and research relevant to the problem. Historical and current trends discussed. A student who has completed PSYC309 must have permission of the department in order to register for PSYC318.

PSYC 319 Community Interventions: Service Learning (3) Two hours of lecture and three hours of volunteer service in the community. Prerequisite: PSYC100, PSYC318 and permission of department Restricted to PSYC and WMST majors. Formerly PSYC309B. Apply knowledge gained in PSYC318 to provide interventions to individuals dealing with a community problem. Critical analysis of interventions and related research. Ethical and cultural considerations in the provision of services are addressed.

PSYC 332 Psychology of Human Sexuality (3) Prerequisite: PSYC100. A survey of historical and contemporary psychological views on a wide variety of sexual behaviors; theory and research bearing on the relationship between life span psychological development, psychological functioning, interpersonal processes and sexual behaviors; political and social issues involved in current sexual norms and practices.

PSYC 334 Psychology of Interpersonal Relationships (3) Prerequisite: PSYC100. Research, theory and their practical applications pertaining to the development, maintenance and dissolution of human relationships. Processes critical to successful relating (e.g., communication, bargaining, conflict resolution), and issues associated with troubled dyadic relations with equal partners (e.g., jealousy, spouse abuse, divorce).

PSYC 336 Psychology of Women (3) Prerequisite: PSYC100. Also offered as WMST336. Credit will be granted for only one of the following: PSYC336 or WMST336. A survey of the biology, life span development, socialization, personality, mental health, and special issues of women.

PSYC 337 Introduction to Community Psychology (3) Prerequisite: PSYC100. Survey and critical examination of the effects of social process and social structure in community life on individual mental health. Includes theoretical models in community psychology.

PSYC 341 Introduction to Memory and Cognition (3) Prerequisite: PSYC100. An introduction to the basic models, methods of research, and findings in memory, problem-solving, and language and their applications.

PSYC 353 Abnormal Psychology (3) Prerequisite: PSYC100. For PSYC majors only. The nature, diagnosis, etiology, and treatment of mental disorders.

PSYC 354 Cross-Cultural Psychology (3) Prerequisite: PSYC100. Cultural components in theory and research in personality, social, and community psychology. Interplay of individual, ethnic, and cultural factors in psychosocial growth and well-being, cross-cultural and cross-ethnic communication, and counseling and psychotherapeutic interactions.

PSYC 355 Developmental Psychology (3) Prerequisite: PSYC100. Survey of research and theory of psychological development from conception through childhood, stressing physiological, conceptual and behavioral changes, and the social and biological context in which individuals develop.

PSYC 356 Psychology of Adolescence (3) Prerequisite: PSYC355 or permission of department. A description of adolescent development based on research and theory interrelating psychological, intellectual, and social changes during the teen years and the systems dealing with those changes.

PSYC 357 Psychology of Adulthood and Aging (3) Prerequisite: PSYC100. Theory, research, and implications of developmental stability and change in physiological, intellectual, and interpersonal functioning in the social context from early adulthood through the aging years.

PSYC 361 Survey of Industrial and Organizational Psychology (3) Prerequisite: PSYC100. A general survey of the field of industrial organizational psychology including such topics as organizational entry (recruitment, selection, training, socialization), organizational psychology (motivation, leadership, job attitudes), and productivity in the work place (performance appraisal, absenteeism, turnover). The role that the larger environment plays in influencing work behaviors and work attitudes.

PSYC 362 Introduction to Negotiation (3) Prerequisite: PSYC100. Restricted to PSYC majors during preregistration. Credit will be granted for only one of the following: PSYC309F or PSYC362. Formerly PSYC309F. Overview of the field of negotiation and the social-psychological and contextual factors that facilitate and inhibit successful negotiation agreements. Students will engage in a variety of negotiation exercises individually and as a team.

PSYC 386 Experiential Learning (1-6) Prerequisite: permission of department. Junior standing.

PSYC 401 Biological Bases of Behavior Laboratory (4) Two hours of lecture and four hours of laboratory per week. Prerequisites: BIOL105; and PSYC200; and PSYC301 or equivalent; and permission of instructor. Restricted to PSYC majors who have completed 85 credits. A laboratory course to introduce students to some of the basic physiological and anatomical techniques of contemporary neuroscience. Exercises look at specific neurons or groups of neurons and how they control such simple behaviors as swimming, prey capture, and species recognition. The lab exercises use living invertebrates and cold-blooded vertebrates.

PSYC 402 Neural Systems and Behavior (3) Prerequisite: PSYC206 or PSYC301. Priority is given to PSYC majors. Credit will be granted for only one of the following: PSYC402. Research on the physiological basis of behavior, including considerations of sensory phenomenon, motor coordination, emotion, drives, and the neurological basis of memory.

PSYC 403 Animal Behavior (3) Prerequisite: PSYC206 or PSYC301. Social interactions, learning, sensory processes, motivation, and experimental methods, with a major emphasis on mammals.

PSYC 404 Introduction to Behavioral Pharmacology (3) Prerequisites: PSYC200 and {PSYC206 or PSYC301}. Theoretical viewpoints on the interaction of drugs and behavior. Basic principles of pharmacology, the effects of drugs on various behaviors, experimental analysis of drug dependence and abuse, and neuropharmacology and behavior.

PSYC 406 Neuroethology (3) Prerequisite: BSCI105 or BSCI106. Recommended: PSYC301. For PSYC majors only. A merger between the disciplines of neuroscience and ethology (animal behavior) studies the behavioral functions of nervous systems using a comparative and evolutionary approach. Students will learn how the nervous system controls behavioral patterns in a variety of different organisms ranging from insects to mammals.

PSYC 407 Behavioral Neurobiology Laboratory (4) Prerequisite: PSYC100, PSYC200 and {BSCI105 or BSCI106}. Recommended: PSYC301. 85 semester hours. Laboratory exercises introducing concepts and techniques of behavioral neurobiology. Activities emphasize design of neurobiology experiments, hands-on experience with behavioral and neurobiological techniques, data collection, and analysis of the results. Most exercises use living animals.

PSYC 409 Topics in Neurosciences Seminar (1) Restricted to students in the Minor in Neurosciences. Prerequisite: permission of department. Junior standing. Repeatable to 4 credits if content differs. Current research in neurosciences will be presented, read, and discussed. Emphasis will change each term.

PSYC 410 Experimental Psychology: Sensory Processes I (4) Three hours of lecture and two hours of laboratory per week. Prerequisites: PSYC200; and completion of the English, math and science supporting course sequence. A student who has completed PSYC310 must have permission of department in order to register for PSYC410. Restricted to PSYC majors who have completed 85 credits and permission of instructor. A systematic survey of the content, models, and methodology of sensory and perceptual research.

PSYC 415 History of Psychology (3) Prerequisite: twelve credits in psychology including PSYC 200 or permission of department. Origins of psychology in philosophy and biology, and the development of psychology as a science in the nineteenth and twentieth centuries. Consideration of current theoretical perspectives and experiments in relation to the enduring problems of psychology, and of the role of culture, science, and technology in the development of psychological ideas.

PSYC 420 Experimental Psychology: Social Processes I (4) Two hours of lecture and four hours of laboratory per week. Prerequisite: PSYC200; PSYC221; the completion of the departmentally required math and science supporting course sequence; and 85 credits. A laboratory course to provide a basic understanding of experimental method in social psychology and experience in conducting research on social processes.

PSYC 423 Advanced Social Psychology (3) Prerequisite: PSYC420 or permission of department. A systematic review of research and points of view in regard to major problems in the field of social psychology.

PSYC 424 Communication and Persuasion (3) Prerequisites: PSYC200 and PSYC221. Effect of social communication upon behavior and attitudes. Theory and research concerning attitude change and social influence.

PSYC 432 Introduction to Counseling Psychology (3) Prerequisite: nine hours in psychology including PSYC200. Analysis of research and intervention strategies developed and used by counseling psychologists. Historical and current trends in content and methodology.

PSYC 433 Basic Helping Skills: Research and Practice (4) Two hours of lecture and two hours of laboratory per week. Prerequisite: PSYC200; and {PSYC235 or PSYC334 or PSYC353 or PSYC432 or PSYC434 or PSYC435 or PSYC436}; and 85 credits. Theories and research regarding effective helping skills. Students will practice helping skills with each other and will conduct research projects evaluating their helping skills. Students should be willing to talk about personal issues in class. Because of the participatory nature of this class, attendance normally will be included in the computation of grades.

PSYC 434 Severe Mental Disorders: Etiology and Treatment (3) Prerequisites: PSYC200, and PSYC301, and PSYC353, or permission of department. For PSYC majors only. Examines multiple perspectives on severe mental illnesses such as schizophrenia and the major affective disorders. Integrates the biological findings with the human experience of these illnesses, their cultural and socio-political aspects, and their psychological, pharmacological, and social service treatments.

PSYC 435 Personality Theories (3) Prerequisite: PSYC100; and PSYC200 or equivalent. Major theories of personality and research methods and findings relevant to those theories.

PSYC 436 Introduction to Clinical Psychology (3) Prerequisite: PSYC200 or equivalent. Critical analysis of clinical psychology, with particular emphasis on current developments and trends.

PSYC 437 The Assessment and Treatment of Addictive Behaviors (3) Prerequisite: PSYC100 and an additional six credits in psychology. Not open to students who have completed PSYC309E during a previous Winterterm semester. Credit will be granted for only one of the following: PSYC309E (taken in the Winterterm) or PSCY437. Formerly PSYC309E. Explores the current research in assessment and treatment of addictive behaviors. Topics may include addictions in the areas of alcohol, drugs, nicotine, gambling, and eating.

PSYC 440 Experimental Psychology: Cognitive Processes (4) Three hours of lecture and two hours of laboratory per week. Prerequisites: PSYC100; and PSYC200; and completion of supporting course sequence; and 85 credits. Recommended: PSYC341. A survey of the content, models, and methods in cognitive psychology with an emphasis on auditory and visual pattern recognition, information processing, attention, memory, learning, problem solving, and language.

PSYC 442 Psychology of Language (3) Prerequisite: PSYC200; and PSYC341 or PSYC440, or permission of department. Introductory survey of topics in psycholinguistic research, theory and methodology. Major emphasis on the contribution of linguistic theory to the psychological study of language behavior and cognition. Linguistic theory, biological bases of language, and speech, grammars, phonetics and phonological performance, speech perception and production, psychological studies of syntax and semantics, language and cognitive development, language comprehension and thought.

PSYC 443 Thinking and Problem Solving (3) Prerequisites: PSYC200; and {PSYC341 or PSYC440} or permission of department. Historical development, current theory and data, and research methods in problem solving. Formal problem solving theory and computer models of thinking and human problem-solving behavior. The uses of strategies to improve students' own thinking processes and problem-solving behavior.

PSYC 444 Cyberpsychology: The Psychology of Human/Computer Interactions (3) Prerequisite: PSYC100 and an additional six credits in psychology. Credit will be granted for only one of the following: PSYC309E or PSYC444. Formerly PSYC309E. Explores traditional psychological processes in the rapidly changing world of computer and internet technologies. Students will address how the use of computers impacts many of the major topics in psychology.

PSYC 445 The Psychology of Video Games and Entertainment (3) Prerequisite: PSYC100 and PSYC200. For PSYC majors; others by permission of department. Credit will be granted for only one of the following: PSYC309V or PSYC445. Formerly PSYC309V. An exploration of the diverse elements and theories in the psychology of video games and entertainment. The history and taxonomy of video games, cognitive and affective elements, virtual reality and social presence, video game violence, and educational and ethical issues will be covered.

PSYC 450 Field Research in Organizational Psychology (4) Two hours of lecture and two hours of laboratory per week. Prerequisites: PSYC100, PSYC200 and completion of the departmentally required math and science supporting course sequence. Recommended: PSYC361. Restricted to PSYC majors who have completed 85 credits. Methods of field research applicable to organizational settings are examined, including field experiments and quasi-experiments, observation, interviewing, surveys, content analysis, and various forms of qualitative inquiry.

PSYC 451 Principles of Psychological Testing (3) Prerequisite: PSYC200 or equivalent. Basic concepts and theories of psychological assessment including test development. Also discussed are social, legal, cultural, and ethical considerations in testing and commonly used tests.

PSYC 455 Cognitive Development (3) Prerequisites: PSYC200 and {PSYC355 or PSYC341 or PSYC440}. Theory and research in cognition from a life-span developmental perspective including memory, reasoning, attention, spatial cognition, and conceptual organization, and discussions of implications of current research for a variety of educational interventions.

PSYC 456 Research Methods in Developmental Psychology (3) Prerequisites: PSYC200 and {PSYC355 or PSYC356 or PSYC357}. A presentation of major research designs used in developmental psychology and of the methodology used in developmental research, such as observational research, program evaluation, and laboratory experimentation.

PSYC 458 Applied Developmental Psychology (3) Prerequisite: PSYC200 and {PSYC355, or PSYC356, or PSYC357}. Repeatable to 6 credits if content differs. An examination of a topic in developmental psychology which has been examined in the laboratory and is central to developmental theories. Extension of these analyses to practical and social issues in the daily life of the developing individual. Topics will vary from semester to semester.

PSYC 460 Psychological Foundations of Personnel Selection and Training (3) Prerequisite: PSYC200 or equivalent. An examination of issues and processes involved in the design and evaluation of personnel selection and training programs in a variety of organizational settings: job, person and organizational analysis; organizational choice; development of predictors; evaluation of instructional and training systems; criteria for performance evaluation, promotion and training.

PSYC 463 Psychology of Motivation and Attitudes in Organizational Settings (3) Prerequisites: PSYC200 and PSYC361. Theories, research and practice regarding the assessment, understanding, and prediction of motivation at work. Theories, assessment and consequences of various work-related attitudes. An integration of theory, research, and practice.

PSYC 464 Psychology of Leaders in Work Organizations (3) Prerequisite: PSYC361 or equivalent. The psychological assumptions and implications of various theories of management and leadership. Selections and training; development of careers; influence processes; change of managerial behavior; and the impact of the larger environment, nature of product or service, and organization structure on managerial behavior.

PSYC 465 Psychology of Organizational Processes (3) Prerequisites: PSYC200 and PSYC361 or equivalent. Theories of interpersonal, intra- and inter-group relations, with emphasis on issues of conflict, competition, cooperation and the role of power in organizations. Organizational diagnosis and intervention.

PSYC 468 Field Experience and Special Assignments in Honors (1-3) Prerequisite: permission of department as well as supervisor and honors faculty. Repeatable to 6 credits. An individual experience arranged by the honors student and his or her supervisor. A proposal submitted to the honors faculty in the semester preceding registration for the course should state the activities anticipated and the method of evaluation.

PSYC 469 Honors Thesis Proposal Preparation (1-3) Prerequisite: Honors thesis supervisor's approval. Repeatable to 3 credits. Development of honors thesis proposal by preliminary research and literature review. Presentation of formal proposal to the thesis committee.

PSYC 478 Independent Study in Psychology (1-3) Prerequisite: permission of both department and instructor in the form of a written agreement signed by the student and the faculty mentor. The student must have completed 9 hours in psychology with at least a 3.0 G.P.A. in psychology and a 2.8 overall G.P.A. Students may not accumulate more than a total of 9 credits in PSYC 478 and PSYC 479 without permission of the Chair of the Department of Psychology or the Psychology Undergraduate Committee. Integrated reading under direction leading to the preparation of an adequately documented report on a special topic.

PSYC 479 Special Research Problems in Psychology (1-3) Prerequisite: permission of both department and instructor in the form of a written agreement signed by the student and the faculty mentor. The student must have completed 9 hours in psychology with at least a 3.0 G.P.A. in psychology and a 2.8 overall G.P.A. Repeatable to a maximum of 9 credits unless there is a waiver from the Psychology Undergraduate Committee. Research and data collection under individual faculty supervision, leading to a written research report.

PSYC 488 Advanced Psychology I (Honors) (3) Prerequisite: PSYC200 and permission of department. Seminar covering topics in sensation, perception, learning, and motivation.

PSYC 489 Senior Seminar (3) Prerequisite: PSYC100. Treatment of a specialized topic in psychology.

PSYC 498 Advanced Psychology II (Honors) (3) Prerequisite: PSYC488H or permission of department. Seminar covering topics in measurement, social processes, developmental processes and other subject matter of current interest.

PSYC 499 Honors Thesis Research (3) Prerequisite: PSYC469 and permission of thesis advisor.

PUAF -- Public Affairs

PUAF 201 Leadership for the Common Good (3) Two hours of lecture and one hour of discussion/recitation per week. Corequisite: CPSP118P. Restricted to College Park Scholars Public Leadership. Freshman standing. This course is designed to provide undergraduate students an introduction to leadership theory and a chance to practice a core set of practical skills relevant to transformational and collaborative leadership.

PUAF 202 Contemporary Issues in Leadership and Public Policy (1) Open only to students in the Rawlings Undergraduate Leadership Fellows Program. Sophomore standing. Students will examine public policy and social justice issues in the community and state. Students hear from local elected officials, leaders of non-profit organizations, members of state and county agencies, and faculty from the School of Public Policy.

PUAF 302 Leadership: Philosophy, Policy and Praxis (3) Restricted to members of the Rawlings Undergraduate Leadership Fellows Program. Prerequisite: PUAF202. Leadership as a search for meaning, identity and purpose are explored. Also introduces major philosophical traditions, from the ancient world to the modern one, and encourages students to ground their leadership interests and aspirations in a disciplined process of self-reflection, critical thinking and inquiry.

PUAF 338 Academic Seminar for Interns: Federal and International (3) Prerequisite: permission of department. Corequisite: PUAF339. Repeatable to 6 credits if content differs. Credit will be granted for only one of the following: BSOS338 or PUAF338. Formerly BSOS338. The academic seminar for student interns in BSOS399. Students read, discuss, analyze, and write about topics in political and public policy leadership, and leadership studies.

PUAF 339 Internship in Political Institutions: Federal and International (3-6) 8 hours per week in internship site for 15 weeks for 3 credits or 16 hours per week in internship site for 15 weeks for 6 credits. Prerequisite: permission of department. Corequisite: PUAF338. Repeatable to 12 credits if content differs. Credit will be granted for only one of the following: BSOS339 or PUAF339. Formerly BSOS339. Offers students supervised internship placements in federal and international political or public policy organizations.

PUAF 348 Academic Seminar for Interns: State and Local (3) Prerequisite: permission of department. Corequisite: PUAF349. Repeatable to 6 credits if content differs. Credit will be granted for only one of the following: BSOS348 or PUAF348. Formerly BSOS348. The academic seminar for student interns in PUAF349. Students read, discuss, analyze, and write about topics in political and public policy leadership, and leadership studies.

PUAF 349 Internship in Political Institutions: State and Local (3-6) 8 hours per week in internship site for 15 weeks for 3 credits or 16 hours per week in internship site for 15 weeks for 6 credits. Prerequisite: permission of department. Corequisite: PUAF348. Repeatable to 12 credits if content differs. Credit will be granted for only one of the following: BSOS349 or PUAF349. Formerly BSOS349. Offers students supervised internship placements in state and local political or public policy organizations.

PUAF 359 Contemporary Issues in Political Leadership and Participation (3) Prerequisite: permission of department. Repeatable to 9 credits if content differs. Credit will be granted for only one of the following: BSOS359 or PUAF359. Formerly BSOS359. Special topics in political leadership and participation.

PUAF 368 Internship in Community Service Organizations (3-6) Prerequisite: permission of department. Repeatable to 12 credits if content differs. Credit will be granted for only one of the following: BSOS366 or PUAF368. Formerly BSOS366. Offers students supervised placements in non-profit community organizations.

PUAF 386 Experiential Learning (3-6) Prerequisite: permission of department. Repeatable to 12 credits if content differs. Credit will be granted for only one of the following: BSOS386 or PUAF386. Formerly BSOS386.

PUAF 388 Special Topics in Public Policy (1-3) Prerequisite: permission of department. Sophomore standing. Repeatable to 6 credits if content differs. Credit will be granted for only one of the following: BSOS388 or PUAF388. Formerly BSOS388. Advanced special topics focusing on an interdisciplinary topic related to Public Policy.

PUAF 396 Fellowship Program in Political Leadership (2-6) Prerequisite: permission of department and acceptance of full-time fellowship program. Credit will be granted for only one of the following: BSOS396 or PUAF396. Formerly BSOS396. Individual instruction course.

PUAF 398 Fellowship Program in Political Leadership (3-6) Prerequisite: permission of department and acceptance of full-time fellowship program. Repeatable to 12 credits if content differs. Credit will be granted for only one of the following: BSOS396 or PUAF398. Formerly BSOS396.

PUAF 399 Directed Study in Public Policy (1-6) Prerequisite: permission of department. Repeatable to 12 credits if content differs. Credit will be granted for only one of the following: BSOS399 or PUAF399. Formerly BSOS399. Guidance for the advanced student capable on interdisciplinary study on special projects under the supervision of faculty.

RELS -- Religious Studies

RELS 216 Introduction to the Study of World Religions (3) Credit will be granted for only one of the following: HIST216 or RELS216. Formerly HIST216. Introduction to the texts, culture, history, and traditions of a range of world religions including African religions, Buddhism, Christianity, Confucianism, Hinduism, Islam, and Judaism among others. A variety of modern academic methods and approaches to religion such as those provided by the disciplines of sociology, psychology, ethnography, and feminist criticism are examined.

RELS 419 Advanced Topics in Religious Studies (3) Recommended: HIST216 or RELS216. Repeatable to 9 credits if content differs. The contemporary study of religion in which topics may address specific religious traditions, regional or historical developments, or methodological and theoretical issues.

RUSS -- Russian

RUSS 101 Intensive Elementary Russian I (6) Not open to native speakers of Russian. Credit will be granted for only one of the following: RUSS101; or RUSS111 and RUSS112. This intensive first-year course is intended to develop the four skills: reading, writing, listening and speaking with an emphasis on communicative competence.

RUSS 102 Intensive Elementary Russian II (6) Prerequisite: RUSS101 or RUSS112 or equivalent. Not open to native speakers of Russian. Credit will be granted for only one of the following: RUSS102; or RUSS113 and RUSS114. A continuation of RUSS101 which will further develop the four skills: reading, writing, listening and speaking with an emphasis on communicative competence.

RUSS 111 Elementary Russian I (Non-Intensive) (3) Credit will be granted for only one of the following: RUSS101; or RUSS111 and RUSS112. Begins the development of the basic skills required for communicative competence in Russian: speaking, listening, writing and reading. RUSS111 and RUSS112 are equivalent to RUSS101: Intensive Elementary Russian I.

RUSS 112 Elementary Russian II (Non-intensive) (3) Prerequisite: RUSS111 or equivalent. Credit will be granted for only one of the following: RUSS101; or RUSS111 and RUSS112. A continuation of RUSS111 which is designed to further the development of the basic skills required for communicative competence in Russian: speaking, listening, writing and reading. RUSS111 and RUSS112 are equivalent to RUSS101: Intensive Elementary Russian I.

RUSS 113 Elementary Russian III (Non-Intensive) (3) Prerequisite: RUSS112 or equivalent. Credit will be granted for only one of the following: RUSS102; or RUSS113 and RUSS114. A continuation of RUSS112 which is designed to further the development of the basic skills required for communicative competence in Russian: speaking, listening, writing and reading. RUSS113 and RUSS114 are equivalent to RUSS102: Intensive Elementary Russian II.

RUSS 114 Elementary Russian IV (Non-Intensive) (3) Prerequisite: RUSS113 or equivalent. Credit will be granted for only one of the following: RUSS102; or RUSS113 and RUSS114. A continuation of RUSS113 which is designed to further the development of the basic skills required for communicative competence in Russian: speaking, listening, writing and reading. RUSS113 and RUSS114 are equivalent to RUSS102: Intensive Elementary Russian II.

RUSS 201 Intermediate Russian I (5) Prerequisite: RUSS102 or RUSS114 or equivalent. Not open to native speakers of Russian. Continued activation and expansion of skills and knowledge acquired in an elementary Russian course with the goal of communicative competence.

RUSS 202 Intermediate Russian II (5) Prerequisite: RUSS201. Not open to native speakers of Russian. Continued activation and expansion of skills and knowledge acquired in RUSS201 with the goal of communicative competence.

RUSS 210 Structural Description of Russian (3) Pre- or corequisite: RUSS201 or equivalent. An introductory linguistic course designed to order and supplement students' knowledge of the sound system and the inflectional system of the verb. A practical component on reading skills also focuses on the verb and methods of developing vocabulary.

RUSS 211 Applied Russian Phonetics (3) Prerequisite: RUSS102. Not open to native speakers of Russian. Pronunciation; the sounds and intonational patterns of Russian in contrast with those of English.

RUSS 221 Masterworks of Russian Literature I (3) Introduction to the classics of Russian literature in translation, beginning with Pushkin in the early 19th century and concluding with works of Dostoevsky and Tolstoy in the latter part of the century. Taught in English.

RUSS 222 Masterworks of Russian Literature II (3) Introduction to the classics of Russian literature in translation, beginning with the end of the nineteenth century and concluding with contemporary works. Taught in English.

RUSS 281 Russian Language and Pre-Revolutionary Culture (3) Not open to native speakers of Russian. Introduction to the Russian language and a study of Russian nationalism; artistic and social concepts in the development of Russian art, dance, geography, history and literature from the 18th to the 20th centuries. Lectures in English, with third hour devoted to basic language instruction (alphabet, vocabulary, pronunciation and minimal conversational skills).

RUSS 282 Contemporary Russian Culture (3) Russia of the post-Communist era. An exploration of the cultural implications of the disintegration of the former Soviet Union. Also included is a brief introduction to the Russian language: alphabet, elementary reading and survival skills for the first time traveler. Course format includes a combination of lectures, group discussions, videos, and optional field trips. Taught in English.

RUSS 298 Special Topics in Russian Language and Literature (3) Repeatable to 6 credits if content differs.

RUSS 301 Advanced Russian I (3) Not open to Native Speakers of Russian. Prerequisite: RUSS202 or equivalent. Advanced training in written Russian communicative structures.

RUSS 302 Advanced Russian II (3) Prerequisite: RUSS301. Advanced training in written Russian communicative structures.

RUSS 303 Russian Conversation: Functional Skills (3) Prerequisite: RUSS202 or equivalent. Intended for students who do not anticipate having the opportunity to study in Russian. Skills for daily life (both function and etiquette) and argumentation (rhetoric).

RUSS 307 Commercial Russian I (3) Prerequisite: RUSS202 or equivalent. Designed to give introductory knowledge of correct commercial Russian including letters, business forms, contracts, and agreements.

RUSS 321 Survey of Russian Literature I (3) Prerequisite: RUSS202 or equivalent. The first half of a survey of Russian literature.

RUSS 322 Survey of Russian Literature II (3) Prerequisite: RUSS321 or equivalent. The second half of a survey of Russian literature.

RUSS 327 Old Russian Literature in Translation (3) Recommended: RUSS221. Old Russian literature of the 11th-17th centuries for the general student. Selected texts will be read in translation, with analysis in terms of genre and historical setting.

RUSS 328 19th Century Russian Literature in Translation (3) Repeatable to 6 credits if content differs. Development of Russian literary thought in the Russian novel and short prose of the 19th century. Influence of western literatures and philosophies.

RUSS 329 Soviet Literature in Translation (3) Repeatable to 6 credits if content differs. Russian literature between 1917 and the fall of the Soviet Union, both as a continuation of pre-revolutionary traditions and as a reflection of Soviet ideology.

RUSS 381 Russian Civilization (in Russian) I (3) Prerequisite: RUSS202. A historical survey of Russian civilization emphasizing architecture, painting, sculpture, music, ballet and the theater to the beginning of the 19th century pointing out the interrelationship of all with literary movements. Taught in Russian.

RUSS 382 Russian Civilization (in Russian) II (3) Prerequisite: RUSS202. A historical survey of Russian civilization emphasizing architecture, painting, sculpture, music, ballet, and the theater, from the beginning of the 19th century to the present pointing out the interrelationships of all with literary movements. Taught in Russian.

RUSS 386 Experiential Learning (3-6) Prerequisite: permission of department. Junior standing.

RUSS 388 Language House Spring Colloquium (1) Prerequisite: Residence in Language House. Repeatable to 8 credits. For students residing in the Language House Immersion Program. Focuses on the development of skills in the target language and acquiring the cultural knowledge of the countries that speak the target language.

RUSS 398 Selected Topics in Russian Language and Literature (3) Repeatable to 6 credits if content differs.

RUSS 401 Advanced Russian Composition (3) Not open to native speakers of Russian. Prerequisite: RUSS302 or equivalent. Approaches to argumentation, organization of information, contextualized grammar, appropriateness of lexical choice, genre, and register.

RUSS 402 Practicum in Written Russian (3) Prerequisite: RUSS401 or equivalent. Designed to improve comprehension of functional varieties of written Russian and develop ability to present in written form concise syntheses of source texts.

RUSS 403 Russian Conversation: Advanced Skills (3) Prerequisite: RUSS303 or equivalent. Advanced spoken production of high-level, abstract language.

RUSS 404 Practicum in Spoken Russian (3) Prerequisite: RUSS403 or equivalent. To improve comprehension of rapidly spoken Russian of various functional styles and to develop ability to synthesize orally the content of spoken material.

RUSS 405 Russian-English Translation I (3) Pre- or corequisite: RUSS302 or equivalent. Introduction to the principles of translation of a particular genre, and is typically diplomatic, business, or literary.

RUSS 406 Russian-English Translation II (3) Prerequisite: RUSS405. Continuation of RUSS405.

RUSS 407 Commercial Russian II (3) Prerequisite: RUSS307. Continuation of RUSS307 focusing in the more difficult and complex Russian business documents and Russian business ministries.

RUSS 409 Selected Topics in Russian Language Study (3) Prerequisite: permission of department. Repeatable to 6 credits if content differs. Presentation of a topic in Russian language study.

RUSS 410 Applied Russian Linguistics (3) The nature of applied linguistics and its contributions to the effective teaching of foreign languages. Comparative study of English and Russian, with emphasis upon points of divergence. Analysis, evaluation and construction of related drills.

RUSS 411 Linguistic Analysis of Russian I (3) Pre- or corequisite: RUSS301. Elucidation of theoretical concepts of modern linguistics through the analysis of problematic concepts in the Russian linguistic system. Phonology and the syntax of the simple sentence.

RUSS 412 Linguistic Analysis of Russian II (3) Prerequisite: RUSS411. Continuation of RUSS411. The syntax of the complete sentence, semantics.

RUSS 431 Russian Literature of the 19th Century I (3)

RUSS 432 Russian Literature of the 19th Century II (3)

RUSS 433 Russian Literature of the 20th Century (3)

RUSS 434 Soviet Russian Literature (3)

RUSS 439 Selected Topics in Russian Literature (3) Prerequisite: permission of department. Repeatable to 6 credits if content differs. Presentation of a topic in Russian literature.

RUSS 473 Recent History of the Russian Language (3) Linguistic interpretation of Russian texts from the late 18th century to the present.

RUSS 499 Independent Study in Russian (1-3) Prerequisite: permission of instructor. Repeatable to 6 credits if content differs. Independent study under faculty supervision.

SLAV -- Slavic

SLAV 386 Experiential Learning (3-6) Prerequisite: Learning Proposal approved by the Office of Experiential Learning Programs, faculty sponsor, and student's internship sponsor. Junior standing.

SLAV 469 Selected Topics in Slavic Studies (3) Prerequisite: permission of department. Repeatable to 6 credits if content differs. Presentation of a topic in Slavic studies.

SLAV 475 Old Church Slavonic (3) Introduction to the language of the oldest recorded Slavic documents. Historical presentation of phonology, morphology, and syntax; reading of texts.

SLAV 479 Selected Topics in Slavic Linguistics (3) Prerequisite: permission of department. Repeatable to 6 credits if content differs. Presentation of a topic in Slavic linguistics.

SLAV 499 Directed Study (1-3) Prerequisite: permission of department. For advanced students. Repeatable to 6 credits if content differs.

SLLC -- School of Languages, Literatures and Cultures

SLLC 283 Introduction to Cinema Studies (3) Three hours of lecture and two hours of laboratory (viewing films) per week. Introduction to the critical study of film, focusing on cinema from myriad cultures in Europe, the Americas, Asia, and Africa, with special attention to form analysis and the way that form affects and creates cultural meaning in such contexts as gender, race, colonialism, political ideology, and technology.

SLLC 299 Special Topics in World Cultures (1-6) Repeatable to 6 credits if content differs. Topic to be announced when course is offered.

SLLC 300 World Film History (3) A historical and critical survey of film as an art form, an institution, and a medium of communication through a selection of major aesthetic movements and masterpieces of world cinema.

SLLC 305 Language, Identity and Diversity in the U.S. (3) Introduces issues of linguistic diversity in the framework of the U.S. as a multilingual society. Special emphasis is placed on attitudes toward language diversity, specifically, how regional, social, generational, ethnic, racial and gender differences in language use contribute to notions of identity.

SLLC 400 Articulatory Phonetics for Second Language Acquisition and Application (3) Junior standing. Also offered as SLLC600. Credit will be granted for only one of the following: SLLC400 or SLLC600. The mechanical capabilities of the human vocal apparatus for producing speech sounds, and their terminology and transcription in the International Phonetic Alphabet. Emphasis is on the practical needs of the teacher and student of foreign language, rather than the theoretical linguist or the hearing-and-speech pathologist. The phonetics of major languages are also introduced, with attention to the pedagogy of their phonetics.

SLLC 471 The Cultural Environment of Global Business (3) Sophomore standing. Credit will be granted for only one of the following: ARHU439B, ARHU439E, ARHU439T, ENES472, SLLC471, SLLC472 or SLLC473. Formerly ARHU439B. The goal of this course is to provide students with an understanding of cultural aspects pertaining to global business, and thereby increasing their awareness of the cultural factors that motivate decisions and behavior in the business world. Students will gain an understanding of how the business cultures in the rest of the world diverge from the American, and develop the cultural understanding, attitudes, and communication skills needed to function appropriately within an increasingly global and multicultural working environment.

SLLC 472 International Business Cultures in Engineering and Technology (3) Sophomore standing. Also offered as ENES472. Credit will be granted for only one of the following: ARHU439B, ARHU439E, ARHU439T, ENES472, SLLC471, SLLC472 or SLLC473. Formerly ARHU439T. The goal of this course is to provide students with an understanding of cultural aspects pertaining to global business and engineering, and thereby increasing their awareness of the cultural factors that motivate decisions and behavior in the business world. Students will gain an understanding of how the business cultures in the rest of the world diverge from the American, and develop the cultural understanding, attitudes, and communication skills needed to function appropriately within an increasingly global and multicultural working environment.

SLLC 473 European Business Cultures (3) Sophomore standing. Credit will be granted for only one of the following: ARHU439B, ARHU439E, ARHU439T, ENES472, SLLC471, SLLC472 or SLLC473. Formerly ARHU439E. The goal of this course is to provide students with an understanding of cultural aspects pertaining to European business, and thereby increasing their awareness of the cultural factors that motivate decisions and behavior in the European business world. Students will gain an understanding of how the European business cultures diverge from the American, and develop the cultural understanding, attitudes, and communication skills needed to function appropriately within an increasingly global and multicultural working environment.

SLLC 499 Special Topics in World Cultures (3) Repeatable to 12 credits if content differs. Interdisciplinary, transnational or cross-language course; specific topic to be announced.

SOCY -- Sociology

SOCY 100 Introduction to Sociology (3) The fundamental concepts and principles of sociology. Includes consideration of culture, patterns of social interaction, norms, values, social institutions, stratification, and social change.

SOCY 105 Introduction to Contemporary Social Problems (3) An examination of contemporary social problems through sociological perspectives; ways in which social problems are part of the organization of society; a detailed study of selected social problems including social conflict and social inequality.

SOCY 201 Introductory Statistics for Sociology (4) Three hours of lecture and two hours of laboratory per week. Prerequisite: SOCY100 and MATH111 or equivalent. Not open to students who have completed BMGT231, ENEE324, or STAT400. Credit will be granted for only one of the following: BIOM301, BMGT230, ECON321, EDMS451, GEOG305, GVPT422, PSYC200, or SOCY201. Elementary descriptive and inferential statistics. Construction and percentaging of bivariate contingency tables; frequency distributions and graphic presentations; measures of central tendency and dispersion; parametric and nonparametric measures of association and correlation; regression; probability; hypothesis testing; the normal, binomial and chi-square distributions; point and interval estimates.

SOCY 202 Introduction to Research Methods in Sociology (4) Prerequisite: SOCY201. The underlying logic, major strategies, specific techniques and skills of sociological research. Research design, measurement, data collection, sampling, field research experiments, surveys, index and scale construction, data analysis, interpretation and report writing.

SOCY 203 Sociological Theory (3) Prerequisite: SOCY100. Development of the science of sociology; historical backgrounds; recent theories of society. Required of all sociology majors.

SOCY 227 Introduction to the Study of Deviance (3) Credit will be granted for only one of the following: SOCY227 or SOCY327. Formerly SOCY327. An introduction to the sociological study of deviant behavior, covering such topics as mental illness, sexual deviance, and the use of drugs.

SOCY 230 Sociological Social Psychology (3) Theoretical perspectives and their applications. Socialization through the life course, the self-concept, attitudes, emotion, attribution, interpersonal relations, group processes, deviance, and social change.

SOCY 241 Inequality in American Society (3) The dynamics of inequality: its social production, politics, future, and ideological bases. Utopian communities, efforts to eliminate inequality.

SOCY 305 Scarcity and Modern Society (3) Prerequisite: three credits of sociology. Resource depletion and the deterioration of the environment. Relationship to lifestyles, individual consumer choices, cultural values, and institutional failures. Projection of the future course of American society on the basis of the analysis of scarcity, theories of social change, current trends, social movements, government actions, and the futurist literature.

SOCY 325 The Sociology of Gender (3) Prerequisite: three credits of sociology. Also offered as WMST325. Credit will be granted for only one of the following: SOCY325 or WMST325. Institutional bases of gender roles and gender inequality, cultural perspectives on gender, gender socialization, feminism, and gender-role change. Emphasis on contemporary American society.

SOCY 333 Technology and Society (3) Prerequisite: three credits of sociology. Impact of technology on agriculture, the industrial revolution, politics, economics, and health, education and welfare, as these affect changes in social organizations. The development of small cities, the better utilization of energy, the use of wealth and abundance and its relation to the division of labor, and the role of technology in shaping of new forms of political and economic organizations.

SOCY 380 Honors Independent Reading in Sociology (3) Prerequisite: permission of department. Formerly SOCY378. This course permits sociology honor students to undertake a program or reading on a particular problem in sociology or a subfield therein. The reading will be done under the supervision of a member of the sociology faculty. Required of sociology honor students.

SOCY 381 Honors Independent Research in Sociology (3) Prerequisite: SOCY380. Formerly SOCY388. This course permits sociology students to define a particular problem in sociology or a subfield therein and to develop a research plan for use as a thesis topic. The work will be done under the supervision of a member of the sociology faculty.

SOCY 383 Honors Thesis Research (3) Prerequisite: SOCY381. Formerly SOCY389. Student research under the direction of a member of the sociology faculty, culminating in the presentation and defense of a thesis reporting the research.

SOCY 386 Experiential Learning (3-6) Prerequisite: permission of department. Junior standing.

SOCY 398 Special Topics in Sociology (1-3) Prerequisite: three credits of sociology. Repeatable to 6 credits if content differs. Topics of special interest to both sociology majors and non-majors.

SOCY 399 Independent Study in Sociology (1-6) Prerequisite: Twelve credits of sociology and permission of department. Repeatable to 6 credits if content differs. Integrated reading or research under the direction and supervision of a faculty member. A maximum of 6 credits may be earned by a student for the same field experience in SOCY386 and SOCY399 combined.

SOCY 401 Intermediate Statistics for Sociologists (4) Three hours of lecture and two hours of laboratory per week. Prerequisite: SOCY201 or equivalent or permission of department. Not open to students who have completed ENEE324, BMGT231, or STAT400. Issues in the use of significance tests in sociology, one and two-way analysis of variance, elements of multiple regression and correlation, techniques for the analysis of nominal and ordinal data.

SOCY 402 Intermediate Procedures For Data Collection (3) Prerequisite: SOCY202 or equivalent; or permission of department. An intermediate survey of the major research methods used by sociologists, including survey research, experimentation, observation, archival research, and in-depth interviewing. The selection of an appropriate research method, with analysis of the strengths and weaknesses of various methods, practical issues, data collection and preparation, and analytical techniques.

SOCY 403 Intermediate Sociological Theory (3) Prerequisite: SOCY203 or permission of department. Major theoretical approaches, including functionalism conflict, symbolic interactionism, and their implicit methods of logic illustrated by case studies. Original works of major theorists in historical perspective.

SOCY 410 Social Demography (3) Prerequisite: six credits of sociology or permission of department. Types of demographic analysis; demographic data; population characteristics; migration; mortality; fertility; population theories; world population growth; population policy.

SOCY 411 Demographic Techniques (3) Prerequisite: SOCY201 or equivalent and SOCY 410; or permission of department. Basic techniques for analyzing population structure and demographic processes, including fertility, mortality and migration.

SOCY 412 Family Demography (3) Prerequisite: six credits of sociology course work. Formerly SOCY312. Family and population dynamics. Fertility issues, such as teenage pregnancy, the timing of parenthood, and family size; as they relate to family behavior, such as marital patterns, child care use, and work and the family. Policy issues that relate to demographic changes in the family.

SOCY 421 Women and Men in the World System (3) Prerequisite: six credits of Sociology or permission of department. Critical overview of major approaches to development (modernization, dependency, world-systems) within comparative sociology. Impact on empirical research and the design and implementation of strategies of development. Salient topics in the comparative sociology of development including: democratization, trends in world income inequalities, structural adjustment programs, and changing patterns of labor force participation by women and men.

SOCY 422 Social Change in Latin America (3) Prerequisite: six credits in sociology or permission of department. Comparative study of social change in contemporary Latin America. Critical review of major theories and their use in empirical research, and assessment of social policy implications of alternative perspectives.

SOCY 424 Sociology of Race Relations (3) Prerequisite: six credits in sociology or permission of department. Also offered as AAST424. Credit will be granted for only one of the following: AAST424 or SOCY424. Analysis of race-related issues, with a primary focus on American society. The historical emergence, development, and institutionalization of racism; the impact of racism on its victims; and racially based conflict.

SOCY 427 Deviant Behavior (3) Prerequisite: six credits of sociology or permission of department. Current theories of the genesis and distribution of deviant behavior, and their implications for a general theory of deviant behavior. Definitions of deviance, labeling theory, secondary deviance.

SOCY 428 Research in Inequality (3) Prerequisite: SOCY202, SOCY203 and one course in Stratification and Inequality. Repeatable to 6 credits if content differs. This is the special topics research course for Stratification and Inequality.

SOCY 430 Social Structure and Identity (3) Prerequisite: six credits of sociology or permission of department. Theoretical issues in social psychology, focusing on social construction of identity. Identity formation and transformation in social process. Structural and cultural dimensions of social identity.

SOCY 431 Principles of Organizations (3) Prerequisite: six credits of sociology or permission of department. Structural and processual characteristics of organizations that make them effective for different purposes and in different environments. Effects of different institutional environments, small group processes, organizational networks, and leadership. Types of organizations studied include formal bureaucracies, professional organizations, and voluntary associations.

SOCY 432 Social Movements (3) Prerequisite: six credits of sociology or permission of department. Movements that seek change in the social and political structure of society. Origins, tactics, organization, recruitment, and success. Case studies come from such movements as labor, civil rights, student, feminist, environmental, neighborhood, and gay rights.

SOCY 438 Research in Organizations and Institutions (3) Prerequisite: SOCY202, SOCY203, and one course in Organizations and Institutions. Repeatable to 6 credits if content differs. This is the special topics research course for Organizations and Institutions.

SOCY 440 Sociology of the Self-Concept (3) Prerequisite: six credits of sociology or permission of department. The nature of the self-concept and the social forces that mold it. Major sociological, psychological, and psycho-analytic theories of the self-concept. Self-concept motives, mechanisms of self-defense, and the nature of a healthy self-concept. Empirical research dealing with the bearing of social interaction, social structure, social context and social institutions on the self-concept.

SOCY 441 Social Stratification and Inequality (3) Prerequisite: six credits of sociology or permission of department. Junior standing. The sociological study of social class, status, and power. Topics include theories of stratification, correlates of social position, functions and dysfunctions of social inequality, status inconsistency, and social mobility.

SOCY 442 The Family and Social Class (3) Prerequisite: six credits of sociology or permission of department. Development of the family from pre-industrial to contemporary period. Emphasis upon class differences in family functioning and the roles of husbands and wives. Changes in these roles from pre-industrial to postindustrial period, and variations by race. Discussion of the emergence of dual-worker and dual-career families and the issues they face.

SOCY 443 The Family and Society (3) Prerequisite: six credits of sociology or permission of department. Study of the family as a social institution; its biological and cultural foundations, historical development, changing structures and functions, the interaction of marriage and parenthood, disorganizing and reorganizing factors in present-day trends.

SOCY 444 Sociology of Children (3) Prerequisite: six credits of sociology or permission of department. Socio-historical analysis of the changing nature and meaning of childhood. Analysis of social psychological, demographic, and socioeconomic aspects of contemporary children's lives, with a focus on peer groups, gender relations, family change, macroeconomic conditions, poverty, health, and educational well-being of children.

SOCY 447 Small Group Analysis (3) Prerequisite: SOCY201 or equivalent or permission of department. Analysis of small group structures and dynamics. Review of research on small groups in real life settings and in laboratories. Presentation of techniques used in small groups.

SOCY 448 Research in Social Psychology (3) Prerequisite: SOCY202, SOCY203, and one course in Social Psychology. Repeatable to 6 credits if content differs. This is the special topics research course in Social Psychology.

SOCY 450 Measurement of Time, Work, and Leisure (3) Prerequisite: six credits of sociology or permission of department. How Americans use time, with specific reference to work, housework, personal and free time activities. Time-use differences across methods, social groups and cultures. Subjective time. Implications for time management, societal quality of life, social policy, and theory.

SOCY 460 Sociology of Work (3) Prerequisite: six credits of sociology or permission of department. Analysis of the American work world with special attention to the impact of social change and occupational conflicts on the individual worker. Professionalization, career patterns, problems of minority groups and the future of work.

SOCY 463 Sociology of Combat (3) Prerequisite: six credits of sociology or permission of department. Sociological theories and concepts related to combat. Influence of historical events on relations between nations and between the military and society. Effects of U.S. social structure on actions in combat; effects of involvement in combat on social structure and on members of society. Cohesion and leadership in military units.

SOCY 464 Military Sociology (3) Prerequisite: six credits of sociology or permission of department. Social change and the growth of military institutions. Complex formal military organizations. Military service as an occupation or profession. The sociology of military life. Relations between military institutions, civilian communities and society.

SOCY 465 The Sociology of War (3) Prerequisite: six credits of sociology or permission of department. The origin and development of armed forces as institutions, the social causes, operations and results of war as social conflict; the relations of peace and war and revolution in contemporary civilizations.

SOCY 467 Sociology of Education (3) Prerequisite: six credits of sociology or permission of department. Sociological analysis of educational institutions and their relation to society: goals and functions, the mechanisms of social control, and the impacts of stratification and social change. Study of the school as a formal organization, and the roles and subcultures of teachers and students.

SOCY 498 Selected Topics in Sociology (1-3) Prerequisite: six credits of sociology or permission of department. Repeatable to 6 credits. Topics of special interest to advanced undergraduates in sociology. Such courses will be offered in response to student request and faculty interest.

SPAN -- Spanish

SPAN 101 Elementary Spanish I (4) Four hours of discussion/recitation per week. Prerequisite: No previous Spanish: high school level 1 Spanish with grade of A or B; high school level 2 Spanish with a grade of C or below. Not open to native/fluent speakers of Spanish. Introduction to the functions and structures of the Spanish language, with emphasis on the four skills of listening, speaking, reading and writing.

SPAN 102 Elementary Spanish II (4) Four hours of discussion/recitation per week. Prerequisite: SPAN101 at UMCP or equivalent. Not open to native/fluent speakers of Spanish. Further study of the functions and structures of the Spanish language, with emphasis on the four skills of listening, speaking, reading and writing.

SPAN 103 Intensive Elementary Spanish (4) Not open to students who have completed SPAN101, SPAN102, more than two years of high school Spanish, or to fluent/native speakers of Spanish. Credit will be granted for only one of the following: SPAN102 or SPAN103. Covers speaking, reading, writing, listening, and culture of Spanish-speaking world.

SPAN 125 Spanish Civilization: From Kingdoms to Nationalities (3) Introduction to the cultural heritage of the Spanish people, their traditions, customs, arts and literature, with special emphasis on the interrelationship of social and literary history. Taught in English.

SPAN 201 Intermediate Spanish (4) Prerequisite: SPAN102 or SPAN103 at UMCP or high school level 3 Spanish with a grade of A or B or high school level 4 Spanish with a C or below. Not open to native/fluent speakers of Spanish. Formerly SPAN203. Continued development of the functions and structures of the Spanish language with emphasis on the four skills of listening, speaking, reading, and writing.

SPAN 203 Intensive Intermediate Spanish (4) Four hours of discussion/recitation per week. Prerequisite: SPAN103 or equivalent. Not open to students who have completed four years of high school Spanish or to fluent/native speakers of Spanish. Credit will be granted for only one of the following: SPAN201 or SPAN203. Formerly SPAN201. Covers speaking, reading, writing, listening, and culture of Spanish-speaking world.

SPAN 204 Spanish Grammar Review (3) Prerequisite: SPAN203 (formerly SPAN201); or high school level 4 or 5 with a grade of A or B; or permission of department. Not open to students who have completed SPAN202 or to native/fluent speakers of Spanish. Credit will be granted for only one of the following: SPAN202 or SPAN204. Formerly SPAN202. An in-depth study and analysis of selected grammatical topics in a contextualized framework.

SPAN 206 Review of Oral and Written Spanish for Native Speakers Educated in the United States (3) Prerequisite: Native or near native knowledge of oral Spanish and no formal education in Spanish. Review of oral and written Spanish for students who have native or near-native ability in Spanish, but have never studied it in a formal setting.

SPAN 207 Reading and Writing in Spanish (3) Prerequisite: SPAN203 with a grade of B+ or higher; or SPAN204 or concurrent SPAN204; or equivalent knowledge; or permission of department. Selected readings with emphasis on reading comprehension and the development of reading strategies. Work in composition writing and a review of selected grammatical topics. Complements material of SPAN204.

SPAN 211 Intermediate Conversation (3) Prerequisite: SPAN203 or permission of department. Not open to native/fluent speakers of Spanish. Development of listening and speaking skills in Spanish. Opportunity to develop oral fluency, improve pronunciation and increase vocabulary. Individual and/or group oral presentations.

SPAN 220 Don Quixote (3) Literal, historical, philosophical, anthropological reading of Cervantes' Don Quixote. Place of novel in Western literary traditions. Taught in English.

SPAN 221 Introduction to Literature (3) Prerequisite: SPAN207 or permission of department. Selected readings in various genres in Spanish and Latin American literature. Discussion and written reports in Spanish.

SPAN 222 Cultural Difference in Contemporary Latin America (3) Introduction to representations and expressions in Latin America: cultural stereotypes, representations of difference, forms of discrimination, sublimation of difference into national identity, and the staging of the other. Taught in English.

SPAN 223 United States Latino Culture (3) Survey of the diverse historical, political, and economic issues contributing to the formation of U.S Latino culture(s) and communities. Representative Latino cultural texts-literary, artistic, musical, film, and performances will be studied and discussed. In English.

SPAN 224 Violence and Resistance in the Americas (3) Indigenous vision of violence and resistance in the Americas. Texts and maps from the European explorers and conquerors are also studied. Readings include primary texts from the 16th as well as from the 20th century. In English.

SPAN 225 Cultures of the Contact Zones - Seville, Al-Andalus and the Atlantic World (3) Two hours of lecture and one hour of discussion/recitation per week. Also offered as HONR248E. Credit will be granted for only one of the following: HONR248E or SPAN225. Content is broad enough to deal with issues of multiculturalism in Spain but also specific enough to center on the city of Seville and the Andalusion region.

SPAN 228 Selected Topics in Latin American Literature and Society (3-6) Repeatable to 6 credits if content differs. Also offered as PORT228. Credit will be granted for only one of the following: SPAN228 or PORT228. Topics on literature and society in contemporary Latin America. Topics vary. Taught in English.

SPAN 234 Issues in Latin American Studies I (3) Two hours of lecture and one hour of discussion/recitation per week. Also offered as PORT234 and LASC234. Credit will be granted for only one of the following: SPAN234 or PORT234 or LASC234. Interdisciplinary study of major issues in Latin America and the Caribbean, including Latin America's cultural mosaic, migration and urbanization. Democratization and the role of religions. Taught in English.

SPAN 235 Issues in Latin American Studies II (3) Two hours of lecture and one hour of discussion/recitation per week. Also offered as PORT235 and LASC235. Credit will be granted for only one of the following: SPAN235 or PORT235 or LASC235. Major issues shaping Latin American and Caribbean societies including the changing constructions of race, ethnicity, gender and class as well as expressions of popular cultures and revolutionary practices. A continuation of SPAN/PORT/LASC234, but completion of 234 is not a prerequisite. Taught in English.

SPAN 301 Advanced Grammar and Composition I (3) Pre- or corequisite: SPAN207. Practice of complex grammatical structures through reading and writing of compositions and essays. Specific lexical, syntactic, rhetorical, and stylistic devices will be highlighted.

SPAN 302 Advanced Grammar and Composition II (3) Prerequisite: SPAN301. Practice in and writing of different types of compositions and essays, including narrations, descriptions, and persuasive writing. Review of problematic syntactical structures.

SPAN 303 Approaches to Cultural Materials in the Hispanic World (3) Prerequisite: SPAN207 or permission of instructor. Development of proficiency in critical thought through the reading, viewing, and analytical discussion of major genres and styles of cultural materials selected from Spanish-speaking world. In Spanish.

SPAN 306 Spanish II for Native Speakers (3) Prerequisite: SPAN206. Practice of complex grammatical structures through reading and writing of compositions and essays. Specific lexical, syntactic, rhetorical and stylistic devices will be highlighted. Designed for Spanish speakers educated in English.

SPAN 307 Oral Communication Skills for Native Speakers of Spanish (3) Development of techniques for formal public speaking in Spanish. Writing and delivering oral presentations for varied audiences and purposes. Includes strategies for organization, the use of rhetorical patterns, and the development of effective discourse. Designed for bilingual students who are native speakers of Spanish (Heritage Language learners), who have been educated in the U.S. and whose Spanish ability is mainly oral.

SPAN 310 Spanish Phonetics (3) Prerequisite: SPAN301 and SPAN303; or permission of department. Descriptive study of the Spanish sound system. Practice in phonetic perception, transcription, and articulation. Particular attention to sentence phonetics; juncture, rhythm, stress, pitch.

SPAN 311 Advanced Conversation I (3) Prerequisite: SPAN204 or SPAN211 or permission of department. Not open to native/fluent speakers of Spanish. Further development of listening and speaking skills in Spanish. Opportunity to develop oral fluency, improve pronunciation and increase vocabulary. Individual and/or group oral presentations.

SPAN 312 Advanced Conversation II (3) Not open to native/fluent speakers of Spanish. Prerequisite: SPAN311. Continued mastery of listening and speaking skills in Spanish. Opportunity to develop oral fluency, improve pronunciation, and increase vocabulary. Emphasis on colloquial and technical language as well as development of linguistic accuracy. Individual and/or group oral presentation.

SPAN 314 Daily Life in Mexico: An Intercultural Approach (1) For students in UMS Study Abroad program in Mexico City. Cultural differences between life in the United States and Mexico.

SPAN 315 Commercial Spanish I (3) Prerequisite: SPAN301 and SPAN303; or permission of department. Business

Spanish terminology, vocabulary and practices. Emphasis on everyday spoken and written Spanish. Readings and discussions of Spanish commercial topics. May include exposure to Spanish commercial topics. May include exposure to Spanish business environments.

SPAN 316 Practicum in Translation I (3) Prerequisite: SPAN301 and SPAN303; or permission of department. Translation of non-literary, non-technical texts into Spanish and/or English.

SPAN 317 Translation II (3) Prerequisite: SPAN316. Translation of non-literary, non-technical texts into Spanish and/or English.

SPAN 318 Translation of Technical Texts (3) Prerequisite: SPAN316. Repeatable to 6 credits if content differs. Translation of technical and specialized texts in various fields (e.g. medicine, law, international affairs, social work, journalism, technology) into Spanish and/or English.

SPAN 321 Survey of Spanish Literature I (3) Prerequisite: SPAN301 or permission of department. Overview of the history of Spanish literature from the 12th through the l7th century.

SPAN 322 Survey of Spanish Literature II (3) Prerequisite: SPAN301 or permission of department. Overview of the history of Spanish literature from the l8th century to the present.

SPAN 323 Survey of Latin-American Literature I (3) Prerequisite: SPAN301 or permission of department. Overview of the history of Latin American literature from the pre-Columbian era through the l8th century.

SPAN 324 Survey of Latin-American Literature II (3) Prerequisite: SPAN301 or permission of department. Overview of the history of Latin American literature from the l9th century to the present.

SPAN 325 Spanish Civilization I (3) Prerequisite: SPAN301 or permission of department. Spanish civilization from the pre-Spanish cultures through the Spanish Golden Age with emphasis on cultural, social, and artistic aspects.

SPAN 326 Spanish Civilization II (3) Prerequisite: SPAN301 or permission of department. Spanish civilization from the 18th century to the present day with emphasis on cultural, social, and artistic aspects.

SPAN 331 Spanish Culture, Civilization and Literature I: Medieval Times (3) Prerequisite: SPAN301 and SPAN303 or permission of instructor. Not open to students who have completed SPAN325 or SPAN321. Credit will be granted for only one of the following: SPAN321, SPAN325, or SPAN331. The exploration of cultures of the Iberian Peninsula from its origins until the 15th century as well as the study of historical and political events that gave rise to the Spanish state. In Spanish.

SPAN 332 Spanish Culture, Civilization and Literature II: Renaissance and Baroque (3) Prerequisite: SPAN301 and SPAN303; or permission of instructor. An overview of cultural and literary production of Spain from the late 15th through late 17th centuries, exploring the production of literary texts in their socio-historical, political, religious and cultural contexts and development. In Spanish.

SPAN 333 Spanish Culture, Civilization and Literature III: Modern Times (3) Prerequisite: SPAN301 and SPAN303 or permission of instructor. Not open to students who have completed SPAN322 or SPAN326. Credit will be granted for only one of the following: SPAN322, SPAN326, or SPAN333. An overview of cultural and literary production of Spain from the late 17th century through the present day, exploring the production of literary texts in their socio-historical, political, religious and cultural contexts and development. In Spanish.

SPAN 346 Latin American Civilization I (3) Prerequisite: SPAN301 or permission of department. Cultural heritage of the Latin American peoples from the pre-Columbian period to independence.

SPAN 347 Latin American Civilization II (3) Prerequisite: SPAN301 or permission of department. Cultural heritage of the Latin American peoples from independence to the present.

SPAN 356 Literary Translation I (3) Prerequisite: SPAN317 or permission of department. Translation of literary texts into Spanish and/or English: narrative.

SPAN 357 Literary Translation II (3) Prerequisite: SPAN317 or permission of department. A continuation of SPAN356. Translation of literary texts into Spanish and/or English: dialogue and other forms.

SPAN 361 Latin American Literatures and Cultures I: From Pre-Columbian to Colonial Times (3) Prerequisite: SPAN301 and SPAN303 or permission of instructor. Not open to students who have completed SPAN323 or SPAN346. Credit will be granted for only one of the following: SPAN361, SPAN323, or SPAN346. Overview of cultural history of Latin America from pre-Columbian civilizations to the Colonial period, exploring the foundations of the Spanish American cultural and literary tradition to approximately 1770. In Spanish.

SPAN 362 Latin American Literatures and Cultures II: From Independence to Nation Formation (3) Prerequisite: SPAN301 and SPAN303 or permission of instructor. An overview of cultural and literary production of Latin America from the 18th Century to approximately 1900, exploring the production of literary texts in their socio-historical, political, and cultural contexts and development. In Spanish.

SPAN 363 Latin American Literatures and Cultures III: From Modernism to Neo-Liberalism (3) Prerequisite: SPAN301 and SPAN303, or permission of instructor. Not open to students who have completed SPAN324 or SPAN347. Credit will be granted for only one of the following: SPAN324, SPAN347, SPAN363. An overview of cultural and literary production of Latin America from the late 19th through the early 21st centuries, exploring the production of literary texts in their socio-historical, political, and cultural contexts and development. In Spanish.

SPAN 386 Experiential Learning (3-6) Prerequisite: permission of department. Junior standing.

SPAN 388 Language House Spring Colloquium (1) Prerequisite: Residence in Language House. Repeatable to 8 credits if content differs. For students residing in the Language House Immersion Program. Focuses on the development of skills in the target language and acquiring the cultural knowledge of the countries that speak the target language.

SPAN 399 Independent Study in Spanish (1-3) Prerequisite: permission of department. Repeatable to 3 credits. Specific readings in literature or a translation project under the supervision of a faculty member of the department.

SPAN 401 Advanced Composition I (3) Prerequisite: SPAN302 or permission of department. Compositions and essays with emphasis on stylistics, idiomatic and syntactic structures. Organization and writing of research papers.

SPAN 402 Advanced Composition II (3) Prerequisite: SPAN401 or permission of department. Compositions and essays with emphasis on stylistics, idiomatic and syntactic structures. Organization and writing of research papers.

SPAN 403 Research and Information Sources in Latin American Studies (1) Two hours of lecture per week. Corequisite: SPAN458. Recommended: SPAN234 and SPAN235. Senior standing. Also offered as LASC403. A foundational course in Latin American Studies information sources. Students will devise a search strategy and explore reference materials available to the Latin American Studies researcher.

SPAN 404 The Short Story in the Middle Ages (3) Prerequisite: One of the following courses: SPAN331, SPAN332, SPAN333, SPAN361, SPAN362, or SPAN363. Presents an overview of one of the most relevant genres of the Middle Ages: the short story, which entailed a process of writing and rewriting of common sources.

SPAN 405 The Sentimental Romance (3) Prerequisite: One of the following courses: SPAN331, SPAN332, SPAN333, SPAN361, SPAN362, or SPAN363. Explores Spain's Sentimental Romances in the Late Middle Ages with an interdisciplinary critical approach.

SPAN 406 Don Juan Manuel's Fictional and Historical Prose (3) Prerequisite: One of the following courses: SPAN331, SPAN332, SPAN333, SPAN361, SPAN362, or SPAN363. Dedicated to the literary production of an important author: Don Juan Manuel. By examining the interaction among writing, reading and the oral acquisition of knowledge in his works, special attention will be given to how the border between fact and fiction is constructed in the Middle Ages.

SPAN 407 Jews, Moslems, and Christians in Medieval Spain (3) Prerequisite: One of the following courses: SPAN331, SPAN332, SPAN333, SPAN361, SPAN362, or SPAN363. Presents an overview of the cultural, political and religious coexistence of Jews, Moslems and Christians in Medieval Spain as it changed from tolerance to persecution and survival.

SPAN 408 Great Themes of the Hispanic Literatures (3) Prerequisite: One of the following courses: SPAN331, SPAN332, SPAN333, SPAN361, SPAN362, or SPAN363. Major themes in the literature of Spain or Spanish-America. Each theme will be announced when the course is offered.

SPAN 410 Literature of the Middle Ages I (3) Prerequisite: One of the following courses: SPAN331, SPAN332, SPAN333, SPAN361, SPAN362, or SPAN363. Spanish literary history from the eleventh through the fifteenth century. Reading of representative texts. This course covers until the year 1350.

SPAN 411 Literature of the Middle Ages II (3) Prerequisite: One of the following courses: SPAN331, SPAN332, SPAN333, SPAN361, SPAN362, or SPAN363. Spanish literary history from the eleventh through the fifteenth century. Reading of representative texts. This course covers from 1350 to 1500.

SPAN 412 Women in the Middle Ages: Myths and Daily Life (3) Prerequisite: One of the following courses: SPAN331, SPAN332, SPAN333, SPAN361, SPAN362, or SPAN363. Explores the role of women during the Middle Ages and analyzes the active participation of women in a society in which men's occupation was warfare. Also explores "feminine voices" and female representations in the literature of the times.

SPAN 413 Libro de Buen Amor (3) Prerequisite: One of the following courses: SPAN331, SPAN332, SPAN333, SPAN361, SPAN362, or SPAN363. Literary traditions in the Libro de buen amor.

SPAN 414 La Celestina (3) Prerequisite: One of the following courses: SPAN331, SPAN332, SPAN333, SPAN361, SPAN362, or SPAN363. Literary and cultural traditions in La Celestina.

SPAN 415 Commercial Spanish II (3) Prerequisite: SPAN 315 or permission of department. Sophomore standing. Business Spanish terminology, vocabulary and practices. Emphasis on everyday spoken and written Spanish. Readings and discussions of international topics. Cross-cultural considerations relative to international business operations, including exporting and banking.

SPAN 416 Practicum in Translation V (3) Prerequisite: SPAN357 or permission of department. Translation of complete literary texts from Spanish into English. Presentation and comparison of special problems encountered in individual projects.

SPAN 417 Practicum in Translation VI (3) Prerequisite: SPAN416 or permission of department. Translation of complete literary texts from Spanish into English. Evaluation of different versions of the original. Problems of interpretation, literary structure and analysis.

SPAN 418 Hispanic Literature in Translation (3) Repeatable to 6 credits if content differs.

SPAN 420 Poetry of the 16th Century (3) Prerequisite: One of the following courses: SPAN331, SPAN332, SPAN333, SPAN361, SPAN362, or SPAN363. Selected readings and literary analysis.

SPAN 421 Prose of the 16th Century (3) Prerequisite: One of the following courses: SPAN331, SPAN332, SPAN333, SPAN361, SPAN362, or SPAN363. Selected readings and literary analysis.

SPAN 422 Cross-Cultural Communication (3) Prerequisite: SPAN315. Junior standing. For SPAN majors only. Focuses on the relationship of language and culture of those operating in world markets. Particular attention will be given to cross-cultural communication, linguistic systems, and culture specific perceptions of the Hispanic world.

SPAN 424 Drama of the Sixteenth Century (3) Prerequisite: One of the following courses: SPAN331, SPAN332, SPAN333, SPAN361, SPAN362, or SPAN363. From the earliest autos and pasos, the development of Spanish drama anterior to Lope de Vega, including Cervantes.

SPAN 425 Introduction to Hispanic Linguistics I: Basic Concepts (3) Prerequisite: SPAN301 and SPAN303; or permission of department. This course begins with an introduction to general concepts in linguistics, from language function and the brain to communication, culture, and thought, and their relation to other disciplines in the social sciences. The main purpose of this course is to provide an overview of Hispanic linguistics through multiple perspectives, while exploring the areas of Spanish morphology, syntax, and semantics. This course will also focus on the structural tendencies of Spanish through a variety of practical activities.

SPAN 426 Introduction to Hispanic Linguistics II: Language in Use (3) Prerequisite: SPAN425. Also offered as SPAN626. Designed for students without previous experience in Linguistics. Focus on language variation and use, linguistic change, and bilingualism.

SPAN 430 Cervantes: Don Quijote (3) Prerequisite: One of the following courses: SPAN331, SPAN332, SPAN333, SPAN361, SPAN362, or SPAN363.

SPAN 431 Cervantes: Novelas Ejemplares and Entremeses (3) Prerequisite: One of the following courses: SPAN331, SPAN332, SPAN333, SPAN361, SPAN362, or SPAN363.

SPAN 432 Colonial Latin American Literature (3) Prerequisite: One of the following courses: SPAN331, SPAN332, SPAN333, SPAN361, SPAN362, or SPAN363. Examines the key themes, writers, literary movements, and cultural debates of the colonial period.

SPAN 433 Women and Culture in Colonial Latin America (3) Prerequisite: One of the following courses: SPAN331, SPAN332, SPAN333, SPAN361, SPAN362, or SPAN363. Considers questions of women and historical production, women writers in colonial times, and contemporary literary interpretations of colonial realities. Debates the continued legacy of female archetypes from the colonial period to the present, and epistemological questions regarding the production of knowledge.

SPAN 434 Poetry of the 17th Century (3) Prerequisite: One of the following courses: SPAN331, SPAN332, SPAN333, SPAN361, SPAN362, or SPAN363. Selected readings, literary analysis, and discussion of the outstanding poetry of the period, in the light of the historical background.

SPAN 435 Prose of the 17th Century (3) Prerequisite: One of the following courses: SPAN331, SPAN332, SPAN333, SPAN361, SPAN362, or SPAN363. Selected readings, literary analysis, and discussion of the outstanding prose of the period, in the light of the historical background.

SPAN 436 Spanish Baroque Drama (3) Prerequisite: One of the following courses: SPAN331, SPAN332, SPAN333, SPAN361, SPAN362, or SPAN363. Reading and critique of the major dramas of the Spanish Golden Age: Lope De Vega, Cervantes, Tirso De Molina and Colderon. This course will be taught in Spanish.

SPAN 437 Drama of the Seventeenth Century (3) Prerequisite: One of the following courses: SPAN331, SPAN332, SPAN333, SPAN361, SPAN362, or SPAN363. Drama after Lope de Vega to Calderon de la Barca and the decline of the Spanish theater.

SPAN 438 Special Topics in Colonial Latin America (3) Prerequisite: One of the following courses: SPAN331, SPAN332, SPAN333, SPAN361, SPAN362, or SPAN363. Repeatable to 9 credits if content differs. The conquest and colonization of the New World produced a textual corpus of invaluable importance for the foundation of Spanish American literary tradition. Special topics (themes, authors, debates, etc.) relevant to the Colonial period will be addressed.

SPAN 440 Literature of the Eighteenth Century (3) Prerequisite: One of the following courses: SPAN331, SPAN332, SPAN333, SPAN361, SPAN362, or SPAN363. Traditionalism, Neo-Classicism, and Pre-Romanticism in prose, poetry, and the theater; esthetics and poetics of the enlightenment.

SPAN 446 Encounters of Atlantic Cultures (3) Prerequisite: One of the following courses: SPAN331, SPAN332, SPAN333, SPAN361, SPAN362, or SPAN363. Emphasis will be placed on the Hispanic literature and artistic production resulting from the cultural exchange of the two sides of the Atlantic. Also, examines canonical as well as less known texts from the 16th century to the present with a cross-cultural, transnational and multiethnic lens.

SPAN 448 Special Topics in Latin American Civilization (3) Prerequisite: One of the following courses: SPAN331, SPAN332, SPAN333, SPAN361, SPAN362, or SPAN363. Repeatable to 6 credits if content differs. Intensive independent study of a selected topic related to Latin American civilization.

SPAN 449 Special Topics in Spanish Civilization (3) Prerequisite: One of the following courses: SPAN331, SPAN332, SPAN333, SPAN361, SPAN362, or SPAN363. Repeatable to 6 credits if content differs. An intensive study of a selected topic related to Spanish civilization.

SPAN 450 The Hispanic Caribbean (3) Prerequisite: One of the following courses: SPAN331, SPAN332, SPAN333, SPAN361, SPAN362, or SPAN363. Credit will be granted for only one of the following: SPAN408C or SPAN450. Formerly SPAN408C. Explores the Hispanic Caribbean as "island spaces" of multiple migrations and cultural identities, as sites of colonial experiences and post-colonial debates.

SPAN 451 Contemporary Cuban Culture, Literature, and Film (3) Prerequisite: One of the following courses: SPAN331, SPAN332, SPAN333, SPAN361, SPAN362, or SPAN363. Explores all the phases of the 1959 Cuban Revolution as depicted in the art it produced within the island and in the greater Cuban diaspora.

SPAN 452 The Romantic Movement in Spain (3) Prerequisite: One of the following courses: SPAN331, SPAN332, SPAN333, SPAN361, SPAN362, or SPAN363. Poetry, prose and drama of the Romantic and Post-Romantic periods.

SPAN 454 Nineteenth Century Fiction (3) Prerequisite: One of the following courses: SPAN331, SPAN332, SPAN333, SPAN361, SPAN362, or SPAN363. Significant novels of the nineteenth century.

SPAN 456 Nineteenth Century Drama and Poetry (3) Prerequisite: One of the following courses: SPAN331, SPAN332, SPAN333, SPAN361, SPAN362, or SPAN363. Significant dramas and poetry of the Realist Period.

SPAN 458 Senior Capstone Course in Latin American Studies (3) Three hours of lecture per week. Prerequisite: One of the following courses: SPAN331, SPAN332, SPAN333, SPAN361, SPAN362, or SPAN363. Senior standing. Also offered as LASC458. Capstone course for advanced students in the Latin American Studies Certificate Program or other students with appropriate preparation. Interdisciplinary topics will vary each semester.

SPAN 459 Latin American Women Writers (3) Prerequisite: One of the following courses: SPAN331, SPAN332, SPAN333, SPAN361, SPAN362, or SPAN363. Repeatable to 9 credits if content differs. Emphasis will be placed on contemporary Latin American women writers.

SPAN 460 The Generation of 1898 and Its Successors (3) Prerequisite: One of the following courses: SPAN331, SPAN332, SPAN333, SPAN361, SPAN362, or SPAN363. Authors and works of all genres of the generation of 1898 and those of the immediately succeeding generation.

SPAN 461 The Generation of 1898 and Its Successors (3) Prerequisite: One of the following courses: SPAN331, SPAN332, SPAN333, SPAN361, SPAN362, or SPAN363. Authors and works of all genres of the generation of 1898 and those of the immediately succeeding generation.

SPAN 462 Twentieth Century Drama (3) Prerequisite: One of the following courses: SPAN331, SPAN332, SPAN333, SPAN361, SPAN362, or SPAN363. Significant plays of the twentieth century.

SPAN 463 Latin American Drama (3) Prerequisite: One of the following courses: SPAN331, SPAN332, SPAN333, SPAN361, SPAN362, or SPAN363. Emphasis will be placed on Latin American plays of the twentieth century.

SPAN 464 Contemporary Spanish Poetry (3) Prerequisite: One of the following courses: SPAN331, SPAN332, SPAN333, SPAN361, SPAN362, or SPAN363. Spanish poetry from the generation of 1927 to the present.

SPAN 466 The Contemporary Spanish Novel (3) Prerequisite: One of the following courses: SPAN331, SPAN332, SPAN333, SPAN361, SPAN362, or SPAN363. The novel and the short story from 1940 to the present.

SPAN 467 Latin American Short Story (3) Prerequisite: One of the following courses: SPAN331, SPAN332, SPAN333, SPAN361, SPAN362, or SPAN363. A pivotal genre in modern Latin American literature: The Short Story will be examined.

SPAN 468 Modernism and Post-Modernism in Spain and Spanish-America (3) Prerequisite: One of the following courses: SPAN331, SPAN332, SPAN333, SPAN361, SPAN362, or SPAN363. Repeatable to 9 credits if content differs. A study of the most important works and authors of both movements in Spain and Spanish-America.

SPAN 470 United States Latino Literature (3) Prerequisite: One of the following courses: SPAN331, SPAN332, SPAN333, SPAN361, SPAN362, or SPAN363. Introduction to U.S. Latino literature through exploration of narrative, poetry, and drama by Chicano, Nuyorican, and Cuban American writers. Discussion of socio-historical issues involved in construction of Latino cultural identity in literature.

SPAN 471 United States Latina Fiction (3) Prerequisite: One of the following courses: SPAN331, SPAN332, SPAN333, SPAN361, SPAN362, or SPAN363. An introduction to United States latina fiction through the study of short stories, novels, poetry, etc. It explores strategies of representation by women of color.

SPAN 472 Latin American Perspectives on the United States (3) Prerequisite: One of the following courses: SPAN331, SPAN332, SPAN333, SPAN361, SPAN362, or SPAN363. 45 semester hours. Latin Americans have grappled with the looming and often conflicting presence of the United States in the Western Hemisphere and as a world power. Latin American discursive responses to the United States will be examined.

SPAN 473 U.S. Latino Performance (3) Prerequisite: One of the following courses: SPAN331, SPAN332, SPAN333, SPAN361, SPAN362, or SPAN363. An introduction to United States Latino Performance texts by Chicano, Nuyorican, Cuban-American, Dominican, Central-American and others.

SPAN 474 Central American Literatures, Cultures, and Histories (3) Prerequisite: One of the following courses: SPAN331, SPAN332, SPAN333, SPAN361, SPAN362, or SPAN363. An overview of Central American history and cultural production, focusing primarily but not exclusively on literary texts.

SPAN 478 Special Topics in United States Latino Cultures (3) Prerequisite: One of the following courses: SPAN331, SPAN332, SPAN333, SPAN361, SPAN362, or SPAN363. Repeatable to 9 credits if content differs. Explores special topics in US Latino Cultures, ranging from Chicano, Nuyorican, Cuban-American, Dominican, Central-American and other border cultural identities.

SPAN 479 Honors Thesis (3-6) Prerequisite: admittance to honors program in Spanish and Portuguese Department. Repeatable to 6 credits if content differs. Researching and writing an honors thesis under the direction of a professor.

SPAN 480 Spanish-American Essay (3) Prerequisite: One of the following courses: SPAN331, SPAN332, SPAN333, SPAN361, SPAN362, or SPAN363. A study of the socio-political contents and aesthetic qualities of representative works from the colonial to the contemporary period.

SPAN 481 Spanish American Essay (3) Prerequisite: One of the following courses: SPAN331, SPAN332, SPAN333, SPAN361, SPAN362, or SPAN363. A study of the socio-political contents and aesthetic qualities of representative works from the colonial to the contemporary period, with emphasis on the essay of the twentieth century.

SPAN 488 Spanish-American Fiction (3) Prerequisite: One of the following courses: SPAN331, SPAN332, SPAN333, SPAN361, SPAN362, or SPAN363. Representative novels and/or short stories from the Wars of Independence to the present or close analysis of major contemporary works. Subject will be announced each time course is offered.

SPAN 489 Spanish-American Fiction (3) Prerequisite: One of the following courses: SPAN331, SPAN332, SPAN333, SPAN361, SPAN362, or SPAN363. Representative novels and/or short stories from the Wars of Independence to the present or close analysis of major contemporary works. Subject will be announced each time course is offered.

SPAN 491 Honors Reading Course: Poetry (3) Supervised reading to be taken by students admitted to the honors program or upon consultation with the instructor.

SPAN 492 Honors Reading Course (3) Supervised reading to be taken by students admitted to the honors program or upon consultation with the instructor.

SPAN 493 Honors Reading Course: Drama (3) Supervised reading to be taken by students admitted to the honors program or upon consultation with the instructor.

SPAN 495 Honors Reading (3) Prerequisite: admittance to Spanish and Portuguese Honors or permission of department. Supervised reading.

SPAN 498 Spanish-American Poetry (3) Prerequisite: One of the following courses: SPAN331, SPAN332, SPAN333, SPAN361, SPAN362, or SPAN363. Main trends, authors and works from the conquest to Ruben Dario.

SPHL -- Public Health

SPHL 386 Experiential Learning (3) Prerequisite: permission of department. Credit will be granted for only one of the following: HLHP386 or SPHL386. Formerly HLHP386.

SPHL 488 Children's Health and Development Clinic (1-4) Prerequisite: permission of department. Formerly HLHP488. An opportunity to acquire training and experience in a therapeutically oriented physical education-recreation program for children referred by various education, special education, medical or psychiatric groups.

SPHL 498 Special Topics in Public Health (3) Junior standing. Repeatable to 9 credits if content differs. Credit will be granted for only one of the following: SPHL498 or SPHL698 of same suffix. Topical and interdisciplinary courses of interest to upper level undergraduate students in the field of Public Health not currently covered by the program.

STAT -- Statistics and Probability

STAT 100 Elementary Statistics and Probability (3) Prerequisite: permission of Math Department based on satisfactory score on MATHEMATICS PLACEMENT EXAM; or MATH110, MATH112, MATH113, or MATH115. Not open to students who have completed MATH111 or any MATH or STAT course with a prerequisite of MATH141. Credit will be granted for only one of the following: MATH111 or STAT100. Simplest tests of statistical hypotheses; applications to before-and-after and matched pair studies. Events, probability, combinations, independence. Binomial probabilities, confidence limits. Random variables, expected values, median, variance. Tests based on ranks. Law of large numbers, normal approximation. Estimates of mean and variance.

STAT 386 Experiential Learning (3-6) Prerequisite: Learning Proposal approved by the Office of Experiential Learning Programs, faculty sponsor, and student's internship sponsor. Junior standing.

STAT 400 Applied Probability and Statistics I (3) Prerequisite: MATH 131 with a grade of C or better, or MATH 141 or equivalent. Not acceptable toward graduate degrees in STAT, AMSC, or MATH. Credit will be granted for only one of the following: BMGT231, ENEE324 or STAT400. These courses are not interchangeable. Consult your program requirements or advisor for what is acceptable toward your program of study. Random variables, standard distributions, moments, law of large numbers and central limit theorem. Sampling methods, estimation of parameters, testing of hypotheses.

STAT 401 Applied Probability and Statistics II (3) Prerequisite: STAT400 (Not acceptable toward graduate degrees in STAT, AMSC, or MATH). Point estimation - unbiased and consistent estimators. Interval estimation. Minimum variance and maximum likelihood estimators. Testing of hypotheses. Regression, correlation and analysis of variance. Sampling distributions. Elements of non-parametric methods.

STAT 410 Introduction to Probability Theory (3) Prerequisite: MATH240 and MATH241. Also offered as SURV410. Credit will be granted for only one of the following: STAT410 or SURV410. Probability and its properties. Random variables and distribution functions in one and several dimensions. Moments. Characteristic functions. Limit theorems.

STAT 420 Introduction to Statistics (3) Prerequisite: STAT410 or SURV410. Also offered as SURV420. Credit will be granted for only one of the following: STAT420 or SURV420. Point estimation, sufficiency, completeness, Cramer-Rao inequality, maximum likelihood. Confidence intervals for parameters of normal distribution. Hypothesis testing, most powerful tests, likelihood ratio tests. Chi-square tests, analysis of variance, regression, correlation. Nonparametric methods.

STAT 430 Introduction to Statistical Computing with SAS (3) Prerequisite: STAT400 or permission of instructor. Descriptive and inferential statistics. SAS software: numerical and graphical data summaries; merging, sorting and splitting data sets. Least squares, regression, graphics and informal diagnostics, interpreting results. Categorical data, lifetime data, time series. Applications to engineering, life science, business and social science.

STAT 440 Sampling Theory (3) Prerequisite: STAT401 or STAT420. Also offered as SURV440. Credit will be granted for only one of the following: STAT440 or SURV440. Simple random sampling. Sampling for proportions. Estimation of sample size. Sampling with varying probabilities. Sampling: stratified, systematic, cluster, double, sequential, incomplete.

STAT 464 Introduction to Biostatistics (3) Prerequisite: One semester of calculus. Not acceptable for credit towards degrees in mathematics or statistics. Junior standing. Probabilistic models. Sampling. Some applications of probability in genetics. Experimental designs. Estimation of effects of treatments. Comparative experiments. Fisher-Irwin test. Wilcoxon tests for paired comparisons.

STAT 470 Actuarial Mathematics (3) Prerequisite: Calculus through MATH240 and MATH241. Recommended: STAT400. Major mathematical ideas involved in calculation of life insurance premiums, including compound interest and present valuation of future income streams; probability distribution and expected values derived from life tables; the interpolation of probability distributions from values estimated at one-year multiples; the 'Law of Large Numbers' describing the regular probabilistic behavior of large populations of independent individuals; and the detailed calculation of expected present values arising in insurance problems.

STAT 498 Selected Topics in Statistics (1-6) Prerequisite: permission of department. Repeatable to 16 credits. Topics of special interest to advanced undergraduate students will be offered occasionally under the general guidance of the MATH/STAT major committee. Students register for reading in statistics under this number.

SURV -- Survey Methodology

SURV 400 Fundamentals of Survey Methodology (3) Prerequisite: STAT100 or permission of department. Credit will be granted for only one of the following: SURV699M or SURV400. Formerly SURV699M. Introduces the student to a set of principles of survey design that are the basis of standard practices in the field. The course exposes the student to both observational and experimental methods to test key hypotheses about the nature of human behavior that affect the quality of survey data. It will also present important statistical concepts and techniques in simple design, execution, and estimation, as well as models of behavior describing errors in responding to survey questions. Not acceptable to graduate degrees in SURV.

SURV 410 Introduction to Probability Theory (3) Prerequisite: MATH240; and MATH241 or permission of department. Also offered as STAT410. Credit will be granted for only one of the following: SURV410 or STAT410. Probability and its properties. Random variables and distribution functions in one and several dimensions. Moments, characteristic functions, and limit theorems.

SURV 420 Introduction to Statistics (3) Prerequisite: SURV410 or STAT410. Also offered as STAT420. Credit will be granted for only one of the following: STAT420 or SURV420. Mathematical statistics, presenting point estimation, sufficiency, completeness, Cramer-Rao inequality, maximum likelihood, confidence intervals for parameters of normal distributions, chi-square tests, analysis of variance, regression, correlation, and nonparametric methods.

SURV 440 Sampling Theory (3) Prerequisite: STAT401 or STAT420. Not open to students who have completed STAT440. Simple random sampling, sampling for proportions, estimation of sample size, sampling with varying probabilities of selection, stratification, systematic selection, cluster sampling, double sampling, and sequential sampling.

THET -- Theatre

THET 110 Introduction to the Theatre (3) Introduction to the people of the theatre: actors, directors, designers and backstage personnel. The core and characteristics of a play script; theatrical forms and styles; and theatre history.

THET 111 Making Theatre: Art and Scholarship (3) Prerequisite: THET110 or permission of department. Systematic introduction to the tools and techniques used by theatre practitioners.

THET 112 Fundamentals of Performance (3) Prerequisite: For Theatre majors or permission of department. Freshman standing. Examines the history and origins of performance in various cultures, types of performance on and off stage, and the space where performance happens.

THET 113 Fundamentals of Theatre History (3) For Theatre majors or permission of department. Freshman standing. Explores the process of artistic and cultural creation by tracing major developments in theatre and drama from Greeks to the present.

THET 114 Fundamentals of Theatre Craft (3) Two hours of lecture and three hours of laboratory per week. This course may be taken simultaneously with THET272, THET373, or THET284. Prerequisite: For Theatre majors or permission of department. Freshman standing. An introduction in basic theatre technology and craftsmanship. Students will learn the process of realizing a theatrical production through classroom instruction and participation in a University production.

THET 115 Fundamentals of Play Analysis (3) For Theatre majors or permission of department. Freshman standing. Explores four different, but overlapping, approaches to script analysis: storytelling, character, dramaturgy, and criticism.

THET 116 Fundamentals of Theatrical Design (3) Two hours of lecture and three hours of laboratory per week. This course may be taken simultaneously with THE273, THET373, or THET284. Prerequisite: Theatre Majors or permission of department. Recommended: THET220 or THET222. Freshman standing. Examines theatre as an environmental art that is realized through collaboration between set, costume, and lighting designers.

THET 120 Introduction to Acting (3) Two hours of lecture and two hours of laboratory per week. For non-majors only. Through scene study, exercises, and improvisation, an appreciation is developed for the working habits of actors which will aid them in rehearsal as well as performance.

THET 170 Theatre Craft I (3) Two hours of lecture and one hour of laboratory per week. A survey of the fundamentals of theatrical production with emphasis on scenery construction. Practical work on Theatre Department productions is included.

THET 171 Theatre Craft II (3) Two hours of lecture and one hour of laboratory per week. A survey of the fundamentals of theatrical production with emphasis on costume construction and lighting design. Practical work on University Theatre productions is included.

THET 195 Gender and Performance (3) Recommended: THET112 and THET113. Intersections between recent research on gender and public performance through history, including theatre, film, and television.

THET 199 Independent Study (1-3) Prerequisite: permission of instructor. Freshman standing. Repeatable to 6 credits if content differs. An independent study in which each student completes an assigned major theatre project under close faculty supervision. Projects may culminate with term papers, scenic, lighting, or costume designs, or a stage production.

THET 210 Movement for Actors (3) Two hours of lecture and two hours of laboratory per week. Prerequisite: THET112, THET113, THET114, THET115, and THET116. Not open to students who have completed 60 credits or THET421. Credit will be granted for only one of the following: THET210 or THET421. Formerly THET421. Focuses on increasing a performer's presence on stage. Will include the F.M. Alexander technique, movement improvisation, exercises for balance, strength, flexibility and stamina.

THET 220 Acting: Foundations (3) Two hours of lecture and two hours of laboratory per week. Prerequisite: THET112, THET113, THET114, THET115 and THET116. For THET majors only. Exercises structured to develop the actor's concentration, imagination, sense and emotional memory. Introduces tools for textual and character analysis.

THET 221 Voice for the Actor (3) Prerequisites: THET110, THET220 and by audition and permission of department. Freeing the natural voice. Exploration and connection of the actor's voice to thought, impulse, and emotion. Work in release of tension, resonance, extending the voice and articulation.

THET 222 Foundations of Acting and Performance (3) Prerequisite: permission of department. Students must have less than 60 credits completed. Formerly THET112, THET220 and THET288. Credit will be granted for only one of the following: THET222; or (THET112, THET220, and THET288). Introduction to various acting techniques, especially Dallas- and Spolin-based improvisation and affective memory; an exploration of the nature of the planned performance and the collaborative creative process. Class will culminate with showcase performance experiences.

THET 223 Text and Context in Western Theatre (3) Prerequisite: permission of department. Students must have less than 60 credit hours completed. Formerly: THET113 and THET115. Credit will be granted for only one of the following: THET223; or (THET113 and THET115). Explores social, political, and cultural development of Western theatre from classical period to twenty-first century. Part of the Foundation series for Theatre majors. Prepares students for upper-level courses in global theatre.

THET 228 Special Topics in Introduction Theatre and Performance (1-3) Prerequisite: THET112, THET113, THET114, THET115, THET116 and permission of department. Sophomore standing. Repeatable to 3 credits if content differs. This course is offered as part of the Department of Theatre's Artist in Residence program. Topics covered may include: Intercultural Theatre; Performance Art; Puppetry; Solo Performance; or Theatrical Design.

THET 240 African Americans in Film and Theatre (3) Two hours of lecture and two hours of discussion/recitation per week. Survey of the history of the image of African Americans in film and theatre.

THET 250 American Musical Theatre and Popular Culture (3) Credit will be granted for only one of the following: THET250 or THET350. Formerly THET350. An exploration of the complicated history of some of America's most popular entertainments from learned pig shows, to vaudeville, to musical theatre. It connects the history of America's diverse racial and ethnic communities to the evolution of forms like minstrelsy, Wild West Shows, and showboat theatre. It also traces the history of our most popular and enduring art form--the musical comedy--from the Ziegfeld Follies to Rent and beyond.

THET 273 Theatre Graphics I (3) Prerequisite: THET112, THET113, THET114, THET115 and THET116; or permission of department. An introduction in graphic techniques for theatrical design and production. The emphasis is on drafting by hand, with an introduction to computer-aided drafting and design.

THET 279 Theatre Workshop I (1) One hour of laboratory per week. Prerequisite: permission of department. Repeatable to 6 credits if content differs. Supervised participation in backstage staffing of University Theatre productions.

THET 282 Stage Makeup (3) Credit will be granted for only one of the following: THET182 or THET282. Formerly THET182. Students learn to design and execute character makeup based on research and script analysis. Studying fundamental facial anatomy, the class learns to manipulate light and shadow with makeup to enhance and alter the shape of facial features. Once these techniques are mastered, the class moves on to more complex exercises, including Old Age, Facial Hair, Wounds and Fantasy.

THET 284 Stage Costume Construction I (3) Prerequisite: permission of department. Credit will be granted for only one of the following: THET284 or THET486. Formerly THET486. Study and practical experience in garment construction and related costume crafts as used in theatre costume design. Flat pattern development, corset construction, theatrical sewing techniques and organization of the costume construction process.

THET 286 Experiential Learning I (1-3) Five hours of laboratory per week. Prerequisite: THET112, THET113, THET114, THET115, THET116 and permission of department. Sophomore standing. Not open to THET students who have completed THET386. Introductory internship in theatre. Constructed to help students in their sophomore year gain practical experience in a supportive work environment in the theatre. Student must research and propose internship to a Faculty Advisor and Internship Venue.

THET 288 Fundamentals Project (1) Prerequisite: Four of the following: THET112, THET113, THET114, THET115, and THET116; or permission of department. Sophomore standing. For THET majors only. Repeatable to 2 credits if content differs. The Fundamentals Project is required of all theatre majors following successful completion of the Fundamentals Core. This project is a collaborative performance presented to an audience of faculty and theatre students during the fall semester of a student's second year. It is a prerequisite for continuing to more advanced classes.

THET 290 American Theatre 1750 to 1890 (3) Formerly THET310. Traces the evolution of the American theatre from its beginning through 1890, aligning this theatre with the major shifts and movements of American society itself, and arriving at the uniquely American theatre and culture.

THET 291 American Theatre 1890-Present (3) Formerly THET310. Traces the evolution of the American theatre during the twentieth century, aligning this theatre with the major shifts and movements of American society itself, and arriving at the uniquely American theatre and culture of today.

THET 293 Black Theatre and Performance I (3) Sophomore standing. Thematic and historical survey of African-American drama from the late nineteenth century to the 1960s. Emphasis on sociopolitical context, thematic thrust, issues, styles, the aesthetic reflected in the work, impact on African-American and general theatre audiences.

THET 294 Black Theatre and Performance II (3) Sophomore standing. Thematic and historical survey of African-American drama from the 1960s to the present. Emphasis on sociopolitical context, thematic thrust, issues, styles, the aesthetic reflected in the work, impact on African-American and general theatre audiences.

THET 299 Independent Study (1-3) Prerequisite: permission of instructor. Sophomore standing. Repeatable to 6 credits if content differs. An independent study in which each student completes an assigned major theatre project under close faculty supervision. Projects may culminate with term papers; scenic, lighting, or costume designs; or a stage production.

THET 310 Voice for the Actor I (3) Prerequisite: THET210, THET220, an audition, and permission of department. Sophomore standing. Not open to students who have completed THET221. Credit will be granted for only one of the following: THET221 or THET310. Freeing the natural voice. In-depth experience of connection of actor's voice to thought, impulse and emotion. Tools for releasing tension, increasing resonance and range, and refining articulation will be explored.

THET 320 Acting II (3) Two hours of lecture and two hours of laboratory per week. Prerequisites: THET110 and THET220. Corequisites: THET111 and THET221. Continuation of THET 220. Emphasis on the fundamentals of acting: personalization, objectives, and characterization.

THET 324 Character Development (3) Two hours of lecture and two hours of laboratory per week. Prerequisite: THET210, THET220, an audition, and permission of department. Junior standing. Not open to students who have completed THET320. European-based physical approach to acting. Primary focus on character development, may include creating original characters and learning how to bring to life an already scripted character. Techniques to explore the soul and psychology of characters and their physical qualities, voice, rhythm and movement.

THET 325 Actor's Process I (3) Two hours of lecture and two hours of laboratory per week. Prerequisite: THET210, THET220, an audition, and permission of department. Not open to students who have completed THET320. Focus on use of self in creating character. Tools employed include decision-making and use of imagery, personalization, objectives, adjectives, and verbs.

THET 328 Special Topics in Intermediate Theatre and Performance (1-3) Prerequisite: THET112, THET113, THET114, THET115, THET116 and permission of department. Junior standing. Repeatable to 03 credits if content differs. This course is offered as part of the Department of Theatre's Artist in Residence program. Topics covered may include: Intercultural Theatre; Performance Art; Puppetry; Solo Performance; or Theatrical Design.

THET 330 Play Directing I (3) Three hours of lecture and three hours of laboratory per week. Prerequisites: THET112, THET113, THET114, THET115, THET116, THET288; THET210 or THET220. Junior standing. A lecture-laboratory course dealing with the techniques of coordinating, designing and guiding the production of a script through to performance. Study and practice in stage composition, movement, pacing, script and character analysis, and rehearsal routines. Emphasis on methods of communicating a script to an audience.

THET 340 Screenplay Analysis (3) Prerequisite: permission of department. Sophomore standing. Credit will be granted for only one of the following: THET340 or THET499G. Formerly THET499G. Examines the narrative structure of screenplays of major motion pictures.

THET 341 Screenwriting I (3) One hour of lecture and two hours of discussion/recitation per week. Prerequisite: junior English. Introduction to screenwriting, emphasizing visual literacy necessary for effective television and film writing.

THET 371 Scenic Design I (3) Prerequisites: THET112, THET113, THET114, THET115, THET116, THET273, and THET288; or permission of department. Credit will be granted for only one of the following: THET371 or THET375. Formerly THET375. A study of design theory and style. Methods and techniques of coordination of all elements of scenic design for theatre.

THET 372 Stage Property Design (3) Prerequisite: THET114 or permission of department. Materials and techniques for the design and execution of stage properties with special emphasis on period research, special materials, and special effects.

THET 373 Rendering for the Theatre I (3) This course may be taken simultaneously with THET116. Prerequisite: permission of department. Credit will be granted for only one of the following: THET373 or THET484. Formerly THET484. A study in the techniques and tools of drawing and painting. It is designed for the student to develop rendering and drawing skills for theatrical design presentation.

THET 377 Lighting Design I (3) Prerequisite: THET112, THET113, THET114, THET115, THET116, THET273, and THET288; or permission of department. Credit will be granted for only one of the following: THET377 or THET476. Formerly THET476. A study of the theories of electrification, instruments, design, color, and control for the stage. Practical work on productions.

THET 380 Sound Design (3) Two hours of lecture and two hours of laboratory per week. Prerequisite: THET114, THET115, and THET116 or permission of instructor. Sophomore standing. Theatre Sound Design is a first course in designing sound for stage productions.

THET 383 Costume Design I (3) Prerequisites: THET112, THET113, THET114, THET115, THET116, and THET373; or permission of department. Credit will be granted for only one of the following: THET383 or THET480. Formerly THET480. Basic principles of theatre costume design and introduction to rendering skills. Emphasis on development of design conception, unity, character statement, basic clothing design and period style adaptation.

THET 384 Stage Costume Construction II (3) Prerequisite: THET284 or permission of department. Credit will be granted for only one of the following: THET384 or THET487. Formerly THET487. Study and practical experience in the construction of stage costumes, props and accessories. Pattern development by draping, millinery, and crafts.

THET 386 Experiential Learning (3-6) Prerequisite: permission of department. Junior standing.

THET 387 Fundamentals of Theatrical Design (3) Prerequisites: THET110 and THET111; or permission of department. Recommended: THET170, THET171. Survey of costume, lighting, scenery, and sound design fundamentals.

THET 388 Special Topics in Performance Studies (3) Prerequisite: THET112, THET113, THET114, THET115, and THET116. Sophomore standing. Repeatable to 6 credits if content differs. Performance Studies is a broad discipline that offers strategies for exploring diverse texts from diverse perspectives. Students are encouraged to explore critical and practical approaches to research and performance, including the History and Practice of Festivals and Carnival Performances, Comedy, Performance in Everyday Life, Contemporary Theatre at the Margins, and Stage Adaptation.

THET 399 Independent Study (1-3) Prerequisite: permission of instructor. Sophomore standing. Repeatable to 6 credits if content differs. An independent study in which each student completes an assigned major theatre project under close faculty supervision. Projects may culminate in term papers, scenic; lighting, or costume designs; or a stage production.

THET 408 Seminar: Theory and Performance Studies (3) Three hours of discussion/recitation per week. Prerequisite: THET488 or THET489 and permission of department. Senior standing. Repeatable to 6 credits if content differs. Also offered as THET608. Credit will be granted for only one of the following: THET408 or THET608. Studies in theatre theory and performance studies from classical antiquity to the present.

THET 410 The American Theatre (3) Prerequisite: THET488 or THET489; and permission of instructor. Senior standing. Also offered as THET610. Credit will be granted for only one of the following: THET410 or THET610. The American theatre from 1750 to 1950, including the position of theatre in culture, its typical features, and major artists.

THET 411 Voice for the Actor II (3) Four hours of laboratory per week. Prerequisite: THET112, THET113, THET114, THET115, THET116, THET288, an audition, and permission of department. Junior standing. Credit will be granted for only one of the following: THET311, THET411 or THET499L. Formerly THET311. Learn the International Phonetic Alphabet (IPA) and apply to exploration of sound and language. Designed to increase voice and speech awareness, and create a base knowledge from which to approach any accent or dialect.

THET 420 Language and the Actor (3) Two hours of lecture and two hours of laboratory per week. Prerequisite: THET310, and either THET324 or THET325, an audition and permission of department. Explores the actor's relationship to language, particularly heightened poetic language, in order to: develop the ability to embody language and vocally and physically project the images; apply an intellectual understanding of the inherent structural, poetic, and rhetorical techniques of heightened language in combination with action theory; and access the inner states of character while expressing them through text.

THET 424 Movement II: Advanced Studies in Movement for the Actor (3) Two hours of lecture and two hours of laboratory per week. Prerequisite: THET310, and either THET324 or THET325, an audition and permission of department. Junior standing. A deeper exploration of how to use the actor's instrument for dramatic expression. Continuing work in the F.M. Alexander Technique and foundational exercise to help actors learn what they need to prepare for rehearsal and performance. Other techniques may include theatrical styles, physical character, dramatic use and play with space and rhythm and masks.

THET 425 Actor's Process II (3) Two hours of lecture and two hours of laboratory per week. Prerequisite: THET310, and either THET324 or THET325, an audition, and permission of department. A deeper exploration of the work begun in THET325. A continuation of creating a personal process through which the actor can confidently approach any genre of play. Special focus on status and subtext and the world of the playwright.

THET 428 Special Topics in Advanced Theatre and Performance (1-3) Prerequisite: THET112, THET113, THET114, THET115, THET116, and permission of department. Junior standing. Repeatable to 3 credits if content differs. This course is offered as part of the Department of Theatre's Artist in Residence program. Topics covered may include: Intercultural Theatre; Performance Art; Puppetry; Solo Performance; or Theatrical Design.

THET 429 Actor's Studio (1-3) Prerequisite: permission of department. Repeatable to 6 credits. Participation in dramatic roles executed under faculty supervision in the department's productions. Eligible students must make commitments and plan performances with course instructor during pre-registration.

THET 430 Directing II: Working with Actors (3) Prerequisite: THET330 or THET324 or THET325 or permission of instructor. Discussion of the preparation procedures and rehearsal practices necessary for the presentation of a variety of theatrical styles and forms. Emphasis on understanding the relationship between the director, the actor, the script and the audience. A series of student directed scenes supplemented by attendance at theatre productions.

THET 441 Screenwriting for TV and Film II (3) One hour of lecture and three hours of discussion/recitation per week. Prerequisite: THET341. Not open to students who have completed THET427 and THET627. Advanced workshop and seminar for students completing feature length screenplays started in Screenwriting I.

THET 442 Visual Storytelling (3) Prerequisite: permission of department. Credit will be granted for only one of the following: THET442 or THET499R. Formerly THET499R. The basic elements of visual literacy are incorporated, using the camera as a creative tool for constructing stories.

THET 451 Musical Theatre Workshop I (3) Prerequisites: audition and permission of department. Development of the ability to move, act and express through the media of lyric and music.

THET 452 Musical Theatre Workshop II (3) Prerequisite: Audition and permission of department. Development of the ability to move, act and express through the media of lyric and music from the integrated musicals of the 1960s through the development of concert and rock/pop musicals.

THET 457 Advanced Lighting Technology (3) Four hours of lecture per week. This course may be taken simultaneously with THET116. Prerequisite: THE377. Sophomore standing. Technological innovations such as moving lights, color changers, and LED are studied from the lighting designer's perspective. Students will have the opportunity to use the equipment in the lighting lab.

THET 464 Design Studio Costume (3) Two hours of lecture and two hours of laboratory per week. Prerequisite: THET383 and permission of department. Credit will be granted for only one of the following: THET464, or THET649. Intermediate and advanced principles of theatrical costume design rendering skills. Emphasis on development of design concept, unity, character statement, and research. Particular design projects will vary.

THET 465 History of Fashion for the Theatre (3) Four hours of lecture per week. Prerequisite: THET116, or permission of instructor. Sophomore standing. A survey of Western clothing from the Ancient Worlds through 20th Century. A discussion of the cultural contexts of various trends in fashion through an examination of art, industry and textiles.

THET 470 Advanced Stage Craft (3) Two hours of lecture and two hours of laboratory per week. Prerequisite: THET114 or permission of instructor. Credit will be granted for only one of the following: THET470 or THET499B. Formerly THET499B. An introduction in technical design and management. Topics include rigging, structural mechanics, and construction in materials other than wood.

THET 471 Design Studio in Scenery (3) Prerequisite: THET371 and permission of department. Also offered as THET639. Credit will be granted for only one of the following: THET471 or THET639. Advanced study of scenic design for the theatre. Particular design projects will vary.

THET 472 Scene Painting (3) Prerequisites: THET114 or permission of department. Credit will be granted for only one of the following: THET472 or THET473. Formerly THET473. Scene painting techniques and materials. Three-dimensional realistic scenery and non-realistic two-dimensional projects.

THET 473 Rendering for the Theatre II (3) Four hours of laboratory per week. Prerequisite: THET 373 or permission of instructor. Continued study in rendering techniques and graphic skills for theatrical design presentation. Emphasis on style, technique and use of different artistic media.

THET 474 Stage Management (3) Prerequisite: Four of the five fundamental courses (THET112, THET113, THET114, THET115, THET116) and permission of instructor. Sophomore standing. Intensive practical study of the techniques and procedures for stage management.

THET 475 History of Art, Architecture, and Decor for the Theatre (3) Prerequisite: THET112, THET113, THET114, THET115, and THET116; and permission of department. Also offered as THET670. Credit will be granted for only one of the following: THET475 or THET670. Study of Western art, architecture, and decor and their practical application to theatrical production.

THET 477 Design Studio in Lighting (3) Four hours of laboratory per week. Prerequisite: THET377 and permission of department. Also offered as THET659. Credit will be granted for only one of the following: THET477 or THET659. Designed for students who have successfully completed THET377 and wish to further develop their lighting design skills. Emphasis is on theoretical design of productions and realized light lab projects. Particular design projects will vary.

THET 479 Production Practicum (1-3) Prerequisite: THET112, THET113, THET114, THET115, and THET116; or permission of department. Repeatable to 6 credits if content differs. Designed to expand students' practical knowledge and skills through working on Department of Theatre productions.

THET 480 Audio Technology (3) Two hours of lecture and three hours of laboratory per week. Prerequisite: THET114; or permission of department. First technical course in the installation and operation of professional sound systems. This course explores current standards of both analog and digital audio theory as well as recording and reinforcement techniques.

THET 481 Theatre Graphics II: Computer Assisted Design (3) One hour of lecture and six hours of laboratory per week. Prerequisites: THET114, THET116, THET273, and permission of department. Sophomore standing. Study and practical application of computer generated graphical design for use in theatrical production.

THET 482 Scene Painting II (3) One hour of lecture and four hours of laboratory per week. Prerequisite: THET472 or permission of instructor. Sophomore standing. Advanced study of theatrical scenic painting.

THET 486 History of Modern Theory & Performance (3) Prerequisites: THET488 or THET489 and permission of instructor. Also offered as THET686. Credit will be granted for only one of the following: THET486 or THET686. Modern dramatic and performance theory from realism to the absurd with special emphasis on the European and American avant-garde.

THET 487 Postmodern Theatre and Performance (3) Prerequisite: THET488 or THET489; and permission of department. Also offered as THET687. Credit will be granted for only one of the following: THET487, THET497 or THET687. Formerly THET497. American and European experimental performance since 1960 will be explored. Topics include postmodern performance, political performance, pornography and performance, popular culture and performance, and gender and performance. Topics are treated historically and theoretically. Student-produced performance projects are an important component of the seminar.

THET 488 Special Topics in Theatre History Before 1800 (3) Prerequisite: Junior standing or permission of instructor. Repeatable to 6 credits if content differs. Credit will be granted for only one of the following: THET488 or THET490. Formerly THET490. Topics in the history of world theatre and performance from the Greeks through 1800.

THET 489 Special Topics in Theatre History from 1800 to Present (3) Prerequisite: Junior standing or permission of instructor. Repeatable to 6 credits if content differs. Credit will be granted for only one of the following: THET489 or THET491. Formerly THET491. Topics in the history of world theatre and performance from 1800 to present.

THET 490 History of Theatre I (3) Prerequisites: THET110 & THET111; or THET113 & THET115; or permission of department. The history of Western theatre from its origins in classical antiquity through the mid-seventeenth century with emphasis on plays and playwrights, architecture and decor, acting and costuming, and significant personalities. Extensive use of graphic materials, play readings, and production projects.

THET 491 Theatre History II (3) Prerequisite: THET110, THET111, and THET490; or permission of department. The history of Western theatre from the late seventeenth century to the late nineteenth century, with emphasis on plays and playwrights, architecture and decor, acting and costuming, and significant personalities. Extensive use of graphic materials, play readings and production projects.

THET 495 History of Theatrical Theory and Criticism (3) The development of theatrical theory and criticism from the Greeks to the modern theorists. The philosophical basis of theatre as an art form. Important theorists and the practical application of their theories in either play scripts or theatrical productions. Required attendance at selected live theatre productions.

THET 496 African-American Women Filmmakers (3) Also offered as WMST496. Credit will be granted for only one of the following: THET496 or WMST496. Examines the cinematic artistry of African-American women filmmakers and the ways in which these films address the dual and inseparable roles of race and gender.

THET 497 Non-Traditional Theatre (3) Seminar exploring American and European experimental performance since 1960. Topics include experimental theatre, performance art, pornography and performance, gender and performance, and popular culture and performance. Topics are treated historically and theoretically. Student-produced performance projects are an important component of the seminar.

THET 498 Seminar: Theatre History (3) Three hours of discussion/recitation per week. Prerequisite: THET488 or THET489; and permission of instructor. Senior standing. Repeatable to 6 credits if content differs. Also offered as THET698. Credit will be granted for only one of the following: THET498 or THET698. Studies in theatre history from classical antiquity to the present.

THET 499 Independent Study (1-3) Prerequisite: permission of department. Repeatable to 6 credits. An independent study course in which each student completes an assigned major theatre project under close faculty supervision. Projects may culminate with term papers, scenic or costume designs, or a stage production.

UMEI -- Maryland English Institute

UMEI 001 English as a Foreign Language: Beginning (12) 22 hours of discussion/recitation per week. Intensive course for the non-native speaker of English who has little or no previous knowledge of English. Focus on the rapid acquisition of the basic features of English grammar and pronunciation and on speaking and understanding American English; reading and writing appropriate to the level will be included. Special fee required for this course. This course does not carry credit towards any degree at the University and does not count in the retention plan.

UMEI 002 English as a Foreign Language: Intermediate I (12) 22 hours of discussion/recitation per week. Intensive course for the non-native speaker of English who has had some previous instruction in English. Emphasis on improving listening and speaking skills, on mastering intermediate grammatical structures, and on expanding vocabulary. Includes practice in reading and writing appropriate to the level. Special fee required for this course. This course does not carry credit towards any degree at the University and does not count in the retention plan.

UMEI 003 English as a Foreign Language: Intermediate II (12) 22 hours of discussion/recitation per week. Intensive course for the non-native speaker of English who has mastered the essential structures of English grammar. Emphasis on improving communicative skills for a wide range of linguistic situations, on rapid expansion of vocabulary, and on improving reading comprehension and basic writing skills. Special fee required for this course. This course does not carry credit towards any degree at the University and does not count in the retention plan.

UMEI 004 English as a Foreign Language: Intermediate III (12) 22 hours of discussion/recitation per week. Intensive course for the non-native speaker of English who has a good command of the basic features of spoken and written English. Emphasis on refining speaking and listening skills, on improving reading speed and comprehension of academic texts, and on developing writing skills for academic courses. Special fee required for this course. This course does not carry credit towards any degree at the University and does not count in the retention plan.

UMEI 005 Advanced English as a Foreign Language (6) 12 hours of discussion/recitation per week. Semi-intensive course for the nearly proficient non-native speaker of English needing additional language instruction prior to undertaking full-time academic study. Speaking and listening skills; improvement of reading speed and comprehension; and development of writing skills. Special fee required for this course. This course does not carry credit towards any degree at the University and does not count in the retention plan.

UMEI 006 English Pronunciation (2) Three hours of discussion/recitation per week. Individualized class for the non-native speaker of English. Diagnosis of individual pronunciation problems. Practice in the correct pronunciation of English sounds and improvement of ability to speak English with proper stress and intonation patterns. Special fee required for this course. This course does not carry credit towards any degree at the University and does not count in the retention plan.

UMEI 007 Advanced Writing for International Students (3) Four hours of discussion/recitation per week. Open to graduate students only. Special fee. A writing skills course for the non-native speaker of English with a good command of spoken English. This course does not carry credit towards any degree at the University and does not count in the retention plan.

UMEI 008 Advanced Oral Communication Skills (2) Four hours of discussion/recitation per week. Prerequisite: permission of department. For advanced non-native speakers of English. Practice in speaking skills relevant to the academic situation. Improvement of speaking skills for various classroom activities such as participating in discussions, making appointments with professors, asking for information and presenting oral reports. Special fee required for this course. This course does not carry credit towards any degree at the University and does not count in the retention plan.

UNIV -- University Courses

UNIV 099 Internship Seminar () Prerequisite: Minimum 2.0 GPA (undergraduates), 3.0 GPA (graduate students); approval of the Career Center and instructor. Complements students' supervised work experiences. Open to all majors; all class levels. Involves exploring career options, developing professional work skills, examining the relationship between internship and academic coursework. Course may be repeated.

UNIV 100 The Student in the University (1) Two hours of lecture per week for 12 weeks. Not open to students who have completed EDCP108O. Credit will be granted for only one of the following: EDCP108O or UNIV100. Formerly EDCP108O. Introduces students to University life. In a small classroom setting, students will explore how to successfully bridge the gap between high school and college. Study skills, career decision-making, and student development processes will be explored.

UNIV 101 The Student in the University and Introduction to Computer Resources (2) Two hours of lecture per week. Introduces students to University life and current computer resources. In a small classroom setting, students will explore the world of higher education and current technological advances available to them. Additionally students will explore current resources both internal and external to the University, and how to utilize the World Wide Web as a research tool.

UNIV 102 STEP: Confidence Building and Study Skills in Mathematics (2) For STEP Individual Admits only. A mathematics preparatory class designed to facilitate a student's transition toward fundamental studies mathematics, including study skills and strategies for success.

UNIV 103 STEP: Making a Successful Transition to University Life (1) For STEP Individual Admits only. A course designed to promote student awareness of university wide campus resources, and to assist students in their transition from high school to college.

UNIV 104 STEP: Reading and Writing at the College Level (1) For STEP Individual Admits only. A workshop designed to enhance students' college level reading and writing abilities to include study skills and strategies for success.

UNIV 105 Pre-Medical and Allied Health Colloquium-I (1) Credit will be granted for only one of the following: UNIV 100 or UNIV 105. Introduces students to University life and to the pre-medical and healthcare fields.

UNIV 108 Markets and Society Colloquium (1) Restricted to students in the Markets and Society program. Provides students with information about the world of business careers. Students hear from a variety of guest speakers, including faculty and professionals from the business community. Students engage in the career exploration process, including self-assessment, information gathering, decision making, and goal setting.

UNIV 188 Introduction to Global Communities (1) Prerequisite: Admittance to the Global Communities Program. Repeatable to 2 credits if content differs. Students to explore culture, identity, value construction and contemporary issues in global society.

UNIV 189 Global Communities Colloquium II (1) Prerequisite: Admittance to the Global Communities Program. Repeatable to 2 credits if content differs. Students acquire intercultural understanding and competency for functioning both personally and professionally in an international environment.

UNIV 205 Pre-medical and Allied Health Colloquium II (1) Prerequisite: UNIV105 and must be in the Pre-Med/Allied Health learning community; or permission of department. Second semester colloquium of the Pre-Medical and Allied Health Learning Community. Students participate in interactive activities and lectures, meet guest speakers with expertise in healthcare, participate in field trips and in experiential opportunities.

UNIV 218 Study Abroad Exploration (3) Restricted to students in designated Study Abroad programs. Repeatable to 6 credits if content differs. Topics and assignments will vary by travel site.

UNIV 288 Global Communities Colloquium III (1-3) Prerequisite: Admittance to Global Communities; UNIV188 and UNIV189, or permission of instructor. Repeatable to 3 credits if content differs. Special topics course (Research, Service-Learning, Practicum or Internship).

UNIV 289 Global Communities Colloquium IV (1-3) Prerequisite: Admittance to Global Communities; UNIV188, UNIV189, UNIV288 or permission of instructor. Repeatable to 3 credits if content differs. Designed to prepare students for personal and professional life in a global society.

UNIV 318 Special Topics in Study Abroad (3) Restricted to students in designated Study Abroad programs. Not open to College Park Scholar students who have completed six credits of CPSP379. Freshman standing. Topics and assignments will vary by travel site, as indicated by subtitles such as Italian Art, Chinese History, and French Theater.

UNIV 325 Beyond the Classroom Seminar I (2) Prerequisite: For students in the Beyond the Classroom (BTC) living and learning program. Development of effective written and oral communication skills for a variety of constituents. Development of civic engagement principles. Students prepare professional portfolios in preparation for a semester-long internship.

UNIV 326 Beyond the Classroom Seminar II (1) One hour of lecture per week. Prerequisite: UNIV325; for students in the Beyond the Classroom (BTC) living and learning program. Seminar for students in internships and service-learning experiences as context for applying communication skills and knowledge of civic engagement leadership skills first introduced in UNIV325. Must be taken concurrently with experiential learning practicum.

UNIV 348 Federal Semester Seminar (3) Prerequisite: permission of Office of Undergraduate Studies. For Federal Semester participants only. Junior standing. Repeatable to 6 credits if content differs. This topical seminar will approach Federal policy formation through a combination of framework-based and content-specific considerations. Content and themes will vary. The Federal Semester is an offering of the Office of Undergraduate Studies in conjunction with several academic colleges and the University Career Center.

UNIV 349 Federal Semester Experiential Learning (1-6) Prerequisite: UNIV348 and learning proposal approved by the Office of Undergraduate Studies and student's internship sponsor. For Federal Semester participants only. Junior standing. Repeatable to 6 credits if content differs. This is the internship component of the Federal Semester program, an offering of the Office of Undergraduate Studies in conjunction with several academic colleges and the University Career Center.

UNIV 378 Beyond the Classroom Experiential Learning (1-3) Restricted to students in Beyond the Classroom program. Prerequisite: UNIV325 and a proposal approved by director of Beyond the Classroom. This is the internship component of the Beyond the Classroom program in which students hold internships at organizations such as governmental units and non-profit agencies.

UNIV 389 Special Topics in Undergraduate Studies (3) Freshman standing. Repeatable to 6 credits if content differs. Courses will focus on interdisciplinary topics and will be planned in cooperation with Undergraduate Studies.

UNIV 399 Experiential Learning in Undergraduate Studies (1-3) Prerequisite: learning proposal approved by the Office of Undergraduate Studies and student's internship sponsor. Junior standing. Repeatable to 6 credits if content differs. Experiential learning offered in conjunction with certain designated Office of Undergraduate Studies programs.

URSP -- Urban Studies and Planning

URSP 100 Challenge of the Cities (3) Formerly URBS100. Contemporary urban patterns, trends and problems. Major urban issues, such as: population change, the economy, land use, housing, neighborhood development, fiscal and unemployment crises, and social, environmental, and political controversies of metropolitan areas. International urbanization patterns and policies.

URSP 118 Selected Topics in Urban Planning (3) Repeatable to 9 credits if content differs. Selected Topic courses address particular issues relating to urban studies and planning. They are focused on specific areas of theory and practice as they relate to the study of urban areas.

URSP 372 Diversity and the City (3) Exploration of the different needs of diverse economic, racial/ethnic, and gender groups that live and work in cities, the historical background of differences, the impact of societal structures and group cultures, and how public and private policies do and can affect different groups.

URSP 399 Independent Study (1-3) Junior standing. Repeatable to 6 credits if content differs. Formerly URBS399. Directed research and study of selected aspects of urban affairs.

URSP 488 Selected Topics in Urban Studies and Planning (1-3) Prerequisite: permission of department. Repeatable to 6 credits if content differs. Formerly URBS488. Topics of special interest to advanced urban studies students.

USLT -- Latina/o Studies

USLT 201 U.S. Latina/o Studies I: An Historical Overview to the 1960's (3) Interdisciplinary course focusing on demographics, terminology and social constructs of race, class, ethnicity, indigeneity, gender, and sexuality associated with the historical and political roots of US Latinidades. Examines the formation, evolution an adaptation of US

Latina/o communities as critical field of inquiry.

USLT 202 US Latina/o Studies II: A Contemporary Overview 1960's to present (3) Interdisciplinary course on emerging populations of Latinos in the 20th century with a focus on the multiple waves of latino immigration as a result of neocolonialism, imperialism, globalization and transnationalism. Examines the positioning of immigrant waves in the political, sociocultural and historical contexts of US Latinidades.

USLT 488 US Latina/o Senior Seminar (3) Prerequisite: Senior standing and permission of instructor. Recommended: USLT201 or USLT202. Repeatable to 9 credits if content differs. A variable topics seminar that exposes students to interdisciplinary critical readings, writings, and research in U.S. Latina/o Studies. Interdisciplinary research methodologies are broadly addressed. Students will gain skills and practice in reading critical analytic texts and will develop writing skills.

USLT 498 US Latina/o Studies: Special Topics (3) Prerequisite: USLT201 or USLT202. Junior or Senior standing. Repeatable to 9 credits if content differs. Specific content to be announced when courses are offered.

WMST -- Women's Studies

WMST 200 Introduction to Women's Studies: Women and Society (3) An interdisciplinary study of the status, roles, and experiences of women in society. Sources from a variety of fields such as literature, psychology, history, and anthropology, focusing on the writings of women.

WMST 210 Women in America to 1880 (3) Also offered as HIST210. Credit will be granted for only one of the following: WMST210 or HIST210. An examination of the economic, family, and political roles of colonial, slave, immigrant and frontier women in America from the pre-industrial colonial period through the early stages of nineteenth century industrialization and urbanization.

WMST 211 Women in America Since 1880 (3) Also offered as HIST211. Credit will be granted for only one of the following: WMST211 or HIST211. An examination of women's changing roles in working class and middle class families, the effects of industrialization on women's economic activities and status, and women's involvement in political and social struggles, including those for women's rights, birth control, and civil rights.

WMST 212 Women in Western Europe 1750-Present (3) Also offered as HIST212. Credit will be granted for only one of the following: WMST212 or HIST212. An analysis of the economic, family, and political roles of European women from 1750 to the present. The effects of industrialization on women's work and status, the demographic parameters of women's lives, and women's participation in political events from market riots to suffrage struggles.

WMST 241 Women Writers of French Expression in Translation (3) Also offered as FREN241. Credit will be granted for only one of the following: WMST241 or FREN241. Works and ideas of 20th century women writers of French in Canada, Africa, the Caribbean, and France. Taught in English.

WMST 250 Introduction to Women's Studies: Women, Art and Culture (3) An examination of women's creative powers as expressed in selected examples of music, film, art, drama, poetry, fiction, and other literature. Explores women's creativity in relation to families, religion, education, ethnicity, class, sexuality, and within a cultural tradition shaped by women.

WMST 255 Introduction to Literature by Women (3) Also offered as ENGL250. Credit will be granted for only one of the following: WMST255 or ENGL250. Images of women in literature by and about women.

WMST 263 Introduction to Black Women's Studies (3) Also offered as AASP298I. Credit will be granted for only one of the following: WMST298A, AASP298I, or AASP298S. Formerly WMST298A. Interdisciplinary exploration of Black women, culture and society in the United States. Drawn primarily from the social sciences and history with complementary material from literature and the arts.

WMST 267 Introduction to Black Women's Cultural Studies (3) Credit will be granted for only one of the following: WMST267 or WMST298A. Formerly WMST298A. An introduction to black women's cultural production and to an understanding of how the social norms and ideals about women within black communities and in the larger society have shaped black women's own self-perceptions and behaviors and thus their cultural production.

WMST 275 World Literature by Women (3) Also offered as CMLT275. Credit will be granted for only one of the following: WMST275 or CMLT275. Comparative study of selected works by women writers of several countries, exploring points of intersection and divergence in women's literary representations.

WMST 281 Women in German Literature and Society (3) Also offered as GERM281. Credit will be granted for only one of the following: WMST281 or GERM281. A study of changing literary images and social roles of women from the beginning of the 19th century to the present.

WMST 298 Special Topics in Women's Studies (1-3) Repeatable to 6 credits if content differs.

WMST 300 Feminist Reconceptualizations of Knowledge (3) Prerequisite: permission of department. For WMST majors only. An examination of how the interdisciplinary study of women and gender has generated new questions, challenged traditional methodologies and offered insights on the ways we come to learn, know, and teach. Explores the impact of feminist thinking on various disciplines.

WMST 314 Black Women in United States History (3) Sophomore standing. Also offered as AASP313 and HIST329E. Credit will be granted for only one of the following: AASP498W, AASP313, HIST329E, WMST314 or WMST498N. Formerly WMST498N. Black American women's history from slavery to the present. Focused on gaining a fuller understanding of the effect of race, class and gender on the life cycles and multiple roles of Black women as mothers, daughters, wives, workers and social-change agents.

WMST 320 Women in Classical Antiquity (3) Also offered as CLAS320. Credit will be granted for only one of the following: WMST320 or CLAS320. A study of women's image and reality in ancient Greek and Roman societies through an examination of literary, linguistic, historical, legal, and artistic evidence; special emphasis on women's role in the family, views of female sexuality, and the place of women in creative art. Readings in primary sources in translation and modern critical writings.

WMST 325 The Sociology of Gender (3) Prerequisite: Three credits of sociology. Also offered as SOCY325. Credit will be granted for only one of the following: WMST325 or SOCY325. Institutional bases of gender roles and gender inequality, cultural perspectives on gender, gender socialization, feminism, and gender-role change. Emphasis on contemporary American society.

WMST 326 Biology of Reproduction (3) Prerequisite: BSCI105 or permission of department. Also offered as BSCI342. Credit will be granted for only one of the following: WMST326 or BSCI342. The biology of the reproductive system with emphasis on mammals and, in particular, on human reproduction. Hormone actions, sperm production, ovulation, sexual differentiation, sexual behavior, contraception, pregnancy, lactation, maternal behavior and menopause.

WMST 336 Psychology of Women (3) Prerequisite: PSYC100. Also offered as PSYC336. Credit will be granted for only one of the following: WMST336 or PSYC336. A study of the biology, life span development, socialization, personality, mental health, and special issues of women.

WMST 348 Literary Works by Women (3) Prerequisite: Two lower-level English courses, at least one in literature; or permission of department. Repeatable to 6 credits if content differs. Also offered as ENGL348. Credit will be granted for only one of the following: WMST348 or ENGL348. The context, form, style and meaning of literary works by women.

WMST 350 Feminist Pedagogy (6) Prerequisite: permission of department. General application of feminist methodology to teaching and communication skills, teaching strategies, motivation, classroom dynamics and knowledge of students' development and learning styles.

WMST 360 Caribbean Women (3) An interdisciplinary analysis of the lives and experiences of women across the Caribbean region, through an examination of their roles in individual, national, social and cultural formations. Special emphasis on contemporary women's issues and organizations.

WMST 370 Black Feminist Thought (3) Prerequisite: One course in WMST or AASP. Examines the ideas, words and actions of Black women writers, speakers, artists, and activists in the United States.

WMST 380 Feminist Analysis of the Workplace (6) Prerequisite: permission of department. An examination of the world of work from a feminist perspective through theory and experience. Designed to provide students with experiences in work situations that have social, economic, educational and/or political impact on women's lives. Students will develop the skill to theoretically analyze their experience and practically implement feminist models in the workplace.

WMST 386 Experiential Learning (1-6) Prerequisite: Learning Proposal approved by Women's Studies Academic Advisor. Junior standing.

WMST 400 Theories of Feminism (3) Prerequisite: one course in WMST or a course cross-listed with a WMST course. A study of the multiplicity of feminist theories which have been developed to explain women's position in the family, the workplace, and society. Major feminist writings are considered in the context of their historical moment and in the context of the intellectual traditions to which they relate.

WMST 408 Literature by Women Before 1800 (3) Prerequisite: Two English courses in literature or permission of department. Repeatable to 9 credits if content differs. Also offered as ENGL408. Credit will be granted for only one of the following: WMST408 or ENGL408. Selected writings by women in the medieval and early modern era.

WMST 410 Women of the African Diaspora (3) Explores the lives, experiences, and cultures of women of Africa and the African diaspora--African-America, the Caribbean, and Afro-Latin America. A variety of resources and materials will be used providing a distinctive interdisciplinary perspective.

WMST 420 Asian American Women: The Social Construction of Gender (3) Also offered as AAST420. Credit will be granted for only one of the following: AAST420 or WMST420. Examines the intersection of gender, race and class as it relates to Asian American women in the United States; how institutionalized cultural and social statuses of gender, race, ethnicity and social class, produce and reproduce inequality within the lives of Asian American women.

WMST 425 Gender Roles and Social Institutions (3) Also offered as SOCY425. Credit will be granted for only one of the following: SOCY425 or WMST425. Relationship between gender roles and the structure of one or more social institutions (e.g., the economy, the family, the political system, religion, education). The incorporation of gender roles into social institutions; perpetuation or transformation of sex roles by social institutions; how changing gender roles affect social institutions.

WMST 430 Gender Issues in Families (3) Prerequisite: SOCY100, SOCY105, or PSYC100. Also offered as FMST430. Credit will be granted for only one of the following: WMST430 or FMST430. The development of historical, cultural, developmental and psychosocial aspects of masculinity and femininity within the context of contemporary families, and the implications for interpersonal relations.

WMST 436 The Legal Status of Women (3) Prerequisite: GVPT231. Also offered as GVPT436. Credit will be granted for only one of the following: WMST436 or GVPT436. An examination of judicial interpretation and application of common, statutory, and constitutional law as these affect the status of women in American society.

WMST 444 Feminist Critical Theory (3) Prerequisite: ENGL250, WMST200 or WMST250. Also offered as ENGL444. Credit will be granted for only one of the following: WMST444 or ENGL444. Issues in contemporary feminist thought that have particular relevance to textual studies, such as theories of language, literature, culture, interpretation, and identity.

WMST 448 Literature by Women of Color (3) Prerequisite: Two English courses in literature or permission of department. Repeatable to 9 credits if content differs. Also offered as ENGL448. Credit will be granted for only one of the following: WMST448 or ENGL448. Literature by women of color in the United States, Britain, and in colonial and post-colonial countries.

WMST 452 Women in the Media (3) Also offered as JOUR452. Credit will be granted for only one of the following: WMST452 or JOUR452. Participation and portrayal of women in the mass media from colonial to contemporary times.

WMST 453 Victorian Women in England, France, and the United States (3) Also offered as HIST493. Credit will be granted for only one of the following: HIST493 or WMST453. Examines the lives of middle and upper-class women in England, France, and the United States during the Victorian era. Topics include gender roles, work, domesticity, marriage, sexuality, double standards and women's rights.

WMST 454 Women in Africa (3) Also offered as HIST494. Credit will be granted for only one of the following: HIST494 or WMST454. The place of women in African societies: the role and function of families; institutions such as marriage, birthing, and child rearing; ritual markers in women's lives; women in the workplace; women's associates; women's health issues; measures designed to control women's behavior; women and development.

WMST 455 Women in Medieval Culture and Society (3) Also offered as HIST495. Credit will be granted for only one of the following: HIST495 or WMST455. Medieval women's identity and cultural roles: the condition, rank and rights of medieval women; their access to power; a study of women's writings and the constraints of social constructs upon the female authorial voice; and contemporary assumptions about women.

WMST 456 Women and Society in the Middle East (3) Recommended: prior coursework in Middle East studies or gender studies. Also offered as HIST 492. Credit will be granted for only one of the following: HIST 492 or WMST 456. Examines the customs, values and institutions that have shaped women's experience in the Middle East in the past and in the contemporary Middle East.

WMST 457 Redefining Gender in the U.S., 1880-1935 (3) Also offered as HIST433. Credit will be granted for only one of the following: HIST433 or WMST457. Exploring changing perceptions of gender in the U.S., 1880-1935, and the impact of those changes on the day to day lives of men and women.

WMST 458 Literature by Women After 1800 (3) Prerequisite: Two English courses in literature or permission of department. Repeatable to 9 credits if content differs. Also offered as ENGL458. Credit will be granted for only one of the following: WMST458 or ENGL458. Selected writings by women after 1800.

WMST 468 Feminist Cultural Studies (3) Repeatable to 9 credits if content differs. Each version of this course focuses on one or several forms of popular culture -- such as TV, music, film, cyber-culture, or genre fiction (for example, science fiction) -- and demonstrates how feminists value, critique and explain such forms. Tools of feminist cultural studies include economic and social analyses of power, race, sexuality, gender, class, nationality, religion, technology, and globalization processes.

WMST 471 Women's Health (3) Also offered as HLTH471. Credit will be granted for only one of the following: WMST471 or HLTH471. The women's health movement from the perspective of consumerism and feminism. The physician-patient relationship in the gynecological and other medical settings. The gynecological exam, gynecological problems, contraception, abortion, pregnancy, breast and cervical cancer and surgical procedures. Psychological aspects of gynecological concerns.

WMST 488 Senior Seminar (3) Prerequisite: permission of department. Repeatable to 9 credits if content differs. Seminar for advanced majors in women's studies or other students with appropriate preparation. Interdisciplinary topics will vary each semester.

WMST 493 Jewish Women in International Perspective (3) Prerequisite: One course in Women's Studies, preferably WMST200 or WMST250. Also offered as JWST493. Credit will be granted for only one of the following: WMST493 or JWST492 or JWST493. Using memoirs, essays, poetry, short stories, films, music and the visual arts, course investigates what it means/has meant to define oneself as a Jewish woman across lines of difference. Focus is largely on the secular dimensions of Jewish women's lives but will also explore the implications of Jewish law and religious practices for Jewish women. Our perspective will be international, including Ashkenazi and Sephardi women.

WMST 494 Lesbian Communities and Differences (3) Prerequisite: One course in Women's Studies, preferably WMST200 or WMST250. The meanings of lesbian communities across many lines of difference. Using lesbian-feminists of the 1970s as a starting point, we will look both back and forward in history, tracing changes and exploring the meanings of these in their social and historical contexts.

WMST 496 African-American Women Filmmakers (3) Also offered as THET496. Credit will be granted for only one of the following: WMST496 or THET496. Examines the cinematic artistry of African-American women filmmakers and the ways in which these films address the dual and inseparable roles of race and gender.

WMST 498 Advanced Special Topics in Women's Studies (1-3) Prerequisite: permission of department. Repeatable to 9 credits if content differs.

WMST 499 Independent Study (1-3) Prerequisite: One course in women's studies and permission of department. Repeatable to 9 credits if content differs. Research and writing or specific readings on a topic selected by the student and supervised by a faculty member of the Women's Studies Department.

WRLD -- World Courses

WRLD 125 The Creative Drive: A World Course: Creativity in Music, Architecture and Science (3) Two hours of lecture and one hour of discussion/recitation per week. Credit will be granted for only one of the following:

UNIV118A, ARHU125 or WRLD125. Formerly ARHU125. Interdisciplinary course team taught by faculty from music, architecture, and mathematics. Study of great creative works and creative personalities in music, architecture and science.

WRLD 135 To Stem the Flow: The Nile, Technology, Politics and the Environment (3) Two hours of lecture and one hour of discussion/recitation per week. Students may count this course for CORE in ONE of three areas: Life Sciences, non-lab {LS} Physical Sciences, non-lab {PS} Social or Political History {SH}. Credit will be granted for only one of the following: UNIV138A or WRLD135. Formerly UNIV138A. This interdisciplinary, team-taught course looks at the interplay of engineering, the environment, biological communities, and politics from the historical context of Egyptian development of the Nile River Valley and the Aswan High Dam.

WRLD 168 Topics in Ethics (3) Two hours of lecture and one hour of discussion/recitation per week. Repeatable to 6 credits if content differs. Formerly UNIV168. Interdisciplinary course team taught by faculty from different disciplines. Comparative perspectives on ethical concerns across major topics and issues of world importance.

WRLD 235 The Power of Water: Politics, Technology, and Development of the Mekong River (3) Two hours of lecture plus a 75 minute learning laboratory each week. An interdisciplinary course that looks at the politics, technology, environmental, and cultural issues of modern development of the Mekong River from China to Vietnam.

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